Cattleya
9 7/8 x b 1/2
Outside
9 5/8 x b 3/8

CATTLEYA × DUSSELDORFII VAR. UNDINE. (*See page* 369).

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1910
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THE

ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

VOLUME XVIII

1910

MO. BOT. GARDEN
1911

London:
MARSHALL BROTHERS, LTD., KESWICK HOUSE, PATERNOSTER ROW, E.C

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TO

SIR TREVOR LAWRENCE, BART., K.C.V.O., V.M.H.,

PRESIDENT OF THE ROYAL HORTICULTURAL SOCIETY,

ONE OF THE

OLDEST AND MOST ENTHUSIASTIC

CULTIVATORS OF ORCHIDS,

THIS VOLUME OF THE "ORCHID REVIEW"

IS CORDIALLY DEDICATED.

Kew,
December, 1910.

Ea 50

Subscriptions for 1910 are now due.

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology

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THE ORCHID REVIEW.

VOL. XVIII.] *JANUARY*, 1910. [No. 205.

ORCHIDS AT ARDDARROCH, GARELOCHHEAD, N.B.

BEING in Scotland about the middle of October, it was my good fortune to visit Arddarroch, the seat of R. Brooman-White, Esq. Arddarroch lies cosily in the valley of Loch Long and is flanked by rugged hills, and here the climate seems peculiarly suited to the cultivation of Orchids, in particular to that of Odontoglossum crispum, which is, and always has been, Mr. White's favourite, and of which twenty thousand plants may be seen here in most exceptional vigour. It is all the year round humid, and Loch Long being salt water no doubt contributes to the persuasiveness of the growing conditions of this favoured locality. The glass houses are really built up the base of a hill, from which water is constantly trickling, and there is actually in one of the houses a natural spring, and damping down in the Cool houses is never required at all. Sphagnum moss grows abundantly in the locality, and the winter is mild and equable.

To these climatically advantageous conditions must be added an enthusiasm of long standing and a ripe experience, for Mr. White's is among the older collections in the kingdom. The collection has been for the last year in the charge of Mr. J. Smith, an Orchid grower of long and varied experience, and who had for some years charge of the Cambridge Lodge collection, now but a recollection, and the general excellence of the plants at Arddarroch highly commend his capabilities as a grower, and also his adaptability.

There are some thirteen houses and divisions devoted to Orchids at Arddarroch, and no fewer than ten of these are filled with Odontoglossums. The named standard varieties of Odontoglossum crispum number sixty, and there are a considerable number of the fine Odonto. hybrids, which are now coming so rapidly to the front.

The accepted season for flowering O. crispum is spring and early summer, and although where a large number are grown there is always a sprinkling in flower during the autumn and winter, the flowers usually come poorer during these late months. At Arddarroch, however, many hundreds were magnificently in flower in October, and a succession in spike that would go well into the winter, and it would be difficult to overpraise the wonderful

quality of plants and flowers, and no exaggeration to say that the display here was quite unique.

As the Odontoglossums flower in this large collection they are carefully graded, and there are thus degrees of quality in the different houses. The finest which the collection has yielded from importations, and which have been augmented by purchases in flower, are contained in a house forty feet long by twelve wide. This house contains about five hundred plants of mostly what would be called "specimens," and all pictures of vigorous health, some sixty of them being in flower and twice as many in spike; and I have never seen—at any season—an equal number of crispums of such superlatively high quality in one batch in flower. These spikes were thick and woody, and the flowers of fine fleshy substance, indicating great lasting properties, either in a cut state or on the plants. Seen in such perfection O. crispum is a noble and graceful Orchid, whose eminence can never be challenged by Odontoglossums of hybrid origin.

Among those in flower were O. c. xanthotes White's var. and O. c. hololeucum, two choice albinos, the former with confluent yellow spots on the sepals and yellow spots round the margin of the lip, the segments being wide and beautifully fimbriated, while the latter has clear white sepals and petals with clear yellow disc and column wings. O. c. Flashlight is a variety of first-class shape, with mauve-tinted sepals and petals, and with large spots on the sepals and a shower of minute spots on the petals. O. c. White's var. has a large, solid, dark blotch on each sepal and petal, and would be placed well up the ranks of the best blotched varieties. O. c. Trianæ Reine des Belges is a beautiful, large, full. white flower, fringed, and fully four inches in diameter, and with a spot on each lower sepal. O. c. Ne Plus Ultra was pointed out in bud, which was nearly as round as a hazel nut, and Mr. White considers it one of the largest and finest shaped varieties in his collection.

Every one of the sixty plants in flower in this house was worthy of individual mention, for all were of the first order, and in that condition of robust health when an Orchid shows its true character. The leaves were two to three inches wide, of fine leathery texture, and with "tipping" hardly existing.

In this house there was no second moisture-holding stage. There was the open lath staging on which the plants were standing, and nothing between them and the pipes, which were of course low down. During the winter, if firing becomes frequent and fierce, it is proposed to put a "break-heat" of corrugated iron, well down on the pipes. This is to be of a temporary character, and will be removed again when the weather becomes milder.

The next house, about twice the size of the former, had in evidence the

same vigour, and the hundred or more spikes in flower were hardly a degree poorer, and three hundred spikes were following on to assure a continuation of the supply. Part of this house was partitioned off, and here the seedlings were grown. Considerable success has been made with the raising of them, in particular those derived from O. Edwardii, crossed with various crispums. Other crosses were O. triumphans × Harryano-crispum, crispum × Pescatorei, c. Rossendale × Adrianæ Cobbianum, c. Angela (a variety resembling Flashlight) × c. Leonard Perfect, &c. Many Cochlioda Nœtzliana and a selection of good O. Rossii, &c., were carrying pods, so that raising is being seriously prepared for. A batch of Cypripedium insigne and C. × Leeanum were accommodated at the end of this house.

We now come to a house containing smaller plants, many of which were in spike. Suspended were a number of Sophronitis grandiflora, O. Rossii, &c., and at the end was a case full of small seedlings of various interesting crosses. Propagation from back bulbs was also being successfully carried on here.

In the next house were again O. crispum and a number of O. Pescatorei, among them several plants of O. P. Thompsoni, a nice spotted form.

In a three-quarter span house were a thousand fine strong plants of O. crispum which had been grown out of doors from the middle of June till the end of September, and these had done nearly, if not quite, as well as those in the houses, and this experiment, which was probably prompted for want of room, testified to the excellence of the climate.

In this house a very puzzling plant was growing. The two imported bulbs resembled very much Oncidium tigrinum, but the new growth, now approaching two feet in length, is distichous, and in appearance something like Vanda cœrulea. [Probably an Ornithidium.—ED.]

Two other Odontoglossum houses follow, one containing small unflowered plants of various importations, and another containing several thousand strong plants, two or three hundred being in flower. I noted in the various houses numbers of seed-pods, some fine O. Harryanum, and other things in flower which it will be impossible to dwell upon, as these notes are already getting lengthy.

The Cattleya and Cypripedium range measures sixty feet in length, and has side and central staging. A partition divides it, equal parts being filled with Cypripediums and Cattleyas respectively.

In the Cattleya house a good many seasonable things were in flower, including several C. labiata and C. Warscewiczii, Brassocattleya Maroni, Læliocattleya Henry Greenwood, &c. Three seedlings of C. citrina and C. Mossiæ are nearing flowering size, and should prove interesting. Some Cyanide of Sodium was experimented with in this house to kill insects, and the results were far from satisfactory, many of the leaves being affected, and

this may be taken as a warning to those who are disposed to try it on Orchids.

In the Cypripedium house one of the side stages is occupied principally with home-raised seedlings, mostly unflowered, many of which are showing buds. Mr. Smith has seedlings from a self-fertilised C. insigne Gladys, the fine yellow variety, and it will be interesting to see if they come true. There were in flower several plants of C. × Morganiæ, C. × Youngianum superbum, with three spikes of three flowers each, C. Sanderiano-Curtisii, with three spikes of four flowers each, C. × villoso-Rothschildianum with three spikes, C. × T. B. Haywood, and several very fine C. Lawrenceanum, of which Mr. White has made a good collection, and other things.

At one end of this range is a good collection of Cymbidiums, also doing remarkably well. A fine specimen of C. Lowianum carried a hundred and nine flowers last year. An interesting pod noticed was C. Tracyanum × C. erythrostylum.

Arddarroch is a long way from Vincent Square, and to bring a group of plants in flower so far at this season of the year, to be shown for a short afternoon, is a matter to give cause for reflection; but if a group of O. crispum such as I saw in October should be shown, I am quite sure that it would be a revelation to all who saw it.

J. M. BLACK.

About the middle of December two dozen flowers of O. crispum were kindly sent by Mr. White, together with a good O. Pescatorei and a very fine O. × Wilckeanum, called White's variety, the latter measuring a little over four inches across, and having broad light yellow sepals and petals, very heavily and regularly blotched with cinnamon-brown. The crispums form a most beautiful series, and one magnificent flower measures $4\frac{1}{4}$ inches from tip to tip of the petals and over $4\frac{3}{4}$ from the tip of the dorsal to the tip of the lateral sepals. The segments are very broad and toothed, and the colour white, with about three small red-brown spots on the lip, a short line of similar colour at the base of each petal, and a small spot on one of the lateral sepals. The majority are of great size and substance, with the broad segments that give that full round appearance to the flowers which is so much admired in this popular species. The range of variation is extensive. There are pure white forms with spots on the lip only, and these varying much in size and colour; blush and pink forms with similar markings; and others well blotched on the sepals and lip, but the petals unspotted. All may be termed typical O. crispum, none of the blotched forms being included. One can easily imagine what the entire inflorescence of some of these beautiful flowers must be like, and we must congratulate Mr. White and his able gardener on such remarkable success.

EVENTS OF 1909.

THE past year has been a period of great activity in the Orchid world, and although it has not been marked by any great outstanding event, its annals show a record of substantial progress. The leading feature has again been in the department of the hybridist, and the remark that we do not now import novelties from abroad so much, we raise them at home, is becoming increasingly true every year. But another welcome development has been the increased interest taken in those remarkable productions of Nature usually termed Botanical Orchids, perhaps for want of a better word. They are now well represented at our horticultural meetings, and an attempt is made to appraise their merit by the award of Botanical Certificates, sometimes of the first and second-class. The movement is likely to spread.

NOVELTIES.

The imported novelties of the year have not been numerous. First and foremost we must mention the beautiful Dendrobium Sanderæ imported by Messrs. Sander & Sons, which was figured at page 209, and received a First-class Certificate from the R.H.S. It is comparable with D. Dearei, though markedly different in having a number of purple markings at the base of the lip. Mormodes revolutum is a very curious Peruvian species which was shown by Messrs. Sander & Sons at Holland House, and Pleurothallis Birchenallii a striking Colombian species which was introduced by Mr. J. Birchenall. Several other interesting Botanical species have been described. Cycnoches densiflorum, from the collection of the Rev. J. C. B. Fletcher, is remarkable as a novelty of which both sexes appeared together, and which was described last year, though it flowered in the previous autumn. It was imported by Messrs. Hugh Low & Co., and was figured at page 104. Both sexes of C. maculatum appeared at Kew, and as the females were previously unknown it is legitimate to mention them here.

HYBRIDS.

Of hybrids the name is legion, but we may mention Miltonioda Lindeni as a remarkable new generic combination between Miltonia and Cochlioda. Odontioda Bradshawiæ, Cookson's var., is a most remarkable variety from the collection of N. C. Cookson, Esq., which was figured at p. 113. Odontioda chelseiensis, raised by Messrs. William Bull & Sons, was figured at p. 48. Brassocattleya Susannæ, figured at p. 137, was raised by Mr. E. O. Orpet, and B.-c. sandhagensis, at p. 241, by Mr. Gustav H. Müller. Several striking things flowered in the collection of Lt.-Col. G. L. Holford, Sir Jeremiah Colman, Sir Trevor Lawrence, R. G. Thwaites, Esq., J. Gurney Fowler, Esq., H. S. Goodson, Esq., De Barri Crawshay, Esq., Messrs. Charlesworth & Co., Messrs. Sander & Sons, and others, but we must reserve the details till later. A few others are mentioned in a succeeding paragraph.

THE R.H.S. MEETINGS.

The fortnightly meetings of the R.H.S. have almost invariably witnessed a brilliant and in many cases an extensive display of these beautiful plants, and have demonstrated the fact that in Orchid culture there is no dull season, but a constant though ever changing display throughout the year. The great shows at the Inner Temple Gardens and especially at Holland House were if anything better than ever before, and brought together an enormous concourse of visitors, though the weather on the second occasion was anything but propitious.

THE NEW CERTIFICATE.

So remarkable has been the amount of progress in the department of hybridisation that the need of a new certificate was felt, to mark the appearance of certain developments for which the existing certificates were unsuitable, and this took the form of the Certificate of Appreciation, which has been awarded on four occasions. On February 23rd it was given to Dendrobium × atro-Brymerianum, raised in the collection of R. G. Thwaites, Esq., from such very diverse species as D. atroviolaceum and D. Brymerianum. At the Holland House Show it was given to Miltonia Harwoodii, raised by Messrs. Charlesworth from Cochlioda Nœtzliana and Miltonia vexillaria. It was figured at page 233. On August 31st it was awarded to Odontioda Graireana, raised by M. H. Graire, of Amiens, France, from Cochlioda Nœtzliana and Odontoglossum Rossii, and at the last meeting of the year it was given to Oncidium × hybridum, the first artificially-raised hybrid in the genus, whose history is given at page 8.

NOMENCLATURE OF MULTIGENERIC HYBRIDS.

Another phase of the same remarkable progress is seen in the need of a Committee to consider the question of the nomenclature of multigeneric hybrids, which was appointed by the R.H.S., and consisted of five members of the Orchid Committee and five of the Scientific Committee. Several meetings were held and a provisional scheme has been adopted, which we believe awaits some further consideration before being adopted in its final form. Our readers have been kept acquainted with the course of events, and the very need of such a Committee causes one to think.

CERTIFICATED ORCHIDS.

The Orchids distinguished by the award of a First-class from the R.H.S. were 47 in number, or four fewer than last year, and these consisted of ten Læliocattleyas, eight Odontoglossums, seven Cattleyas, five Odontiodas, and four Cypripediums, these being followed by Dendrobium and Brassocattleya with three each, Cirrhopetalum with two, and Calanthe, Oncidium, Sophrocattleya, Sophrocatlælia, and Zygocolax with one each. No fewer than 36 of these were of hybrid origin, while of the eleven species three were forms of Cattleya Schrœderæ, and two forms of

C. Trianæ. Two of the Dendrobiums were the new D. Sanderæ (figured at p. 209), and D. acuminatum, a Philippine species of recent introduction The two Cirrhopetalums were the remarkable C. longissimum (described at p. 373), and C. pulchrum Cliftoni (figured at p. 328). It is curious to note that Læliocattleya jumped from the fifth place to the top of the list, while Cypripedium dropped from the second place to the fifth. About 59 Awards of Merit were given, while the Botanical Certificates and Cultural Commendations numbered 21 each. The latter award is given for exceptional culture, and it is particularly satisfactory to find it standing so well on the list.

MANCHESTER ORCHID SOCIETY.

The awards of the Manchester Orchid Society are given on a different system, and thus cannot be compared with those of the R.H.S., but Mr. Thorp informs us that 83 First-class Certificates have been given, while the other awards have been correspondingly numerous. It has been the most successful year on record, so far as exhibits go, and there can be no doubt that the numerous Cup Competitions now in progress have helped to bring together so many fine varieties, and produced those excellent displays which we have recorded month by month.

OTHER SOCIETIES.

A complete reorganisation of the German Orchid Society was also announced, and its journal, *Orchis*, is now published in connection with the *Gartenflora*, under the editorship of Dr. Otto N. Witt. An exhibition was held in April last, and brought together a display of interesting things. The Cercle des Orchidophiles Belges has also been reconstituted.

LITERATURE.

Under the head of literature we may mention the publication of the *Orchid Stud-Book*, by Messrs. R. A. Rolfe and C. C. Hurst, and *Mendel's Principles of Heredity* by W. Bateson, though in the latter examples drawn from Orchidology are not numerous. We may also mention the "Revision of the Genus Cycnoches," by R. A. Rolfe, which appeared in the *Kew Bulletin*, in which the history of this remarkable genus is given, and the relationship of the different forms to each other is traced. All have been reviewed in our pages. The *Orchid Stud-Book* was called for by the enormous development of Orchid hybridisation, and the continuation in our pages which was outlined some time ago may only be regarded as delayed through the necessity of extending the work on somewhat different lines, which could not be so clearly seen at the time it was commenced.

LOSSES DURING THE YEAR.

We have to mourn the loss of Mr. Norman C. Cookson, one of our most skilful hybridists, a very successful raiser of Calanthes, Phaius, Dendrobiums, and other Orchids, also a very old member of the R.H.S.

Orchid Committee; and of Mr. Edward Shuttleworth, some thirty years ago a famous collector of Orchids, and at one time in business in connection with Mr. John Carder, who passed away only a few months earlier, and whose obituary notice appeared in our January issue. Mr. G. F. Morris, of the firm of Messrs. Protheroe and Morris, was well known to many of our readers who visit the Sale Rooms.

But we must close this hasty survey. What developments the year now opening may have in store cannot be foretold, though we are confident that further substantial progress will be made, as Orchids were never more popular than at present. Whatever they may be we shall aim at recording them impartially and as fully as space permits. And we would appeal for the continued goodwill and assistance of our readers in our efforts. There are many ways in which they can render valuable assistance, particularly in sending us records of important events, or interesting flowers or photographs, and in making the work known among their friends. We may conclude by wishing our readers a happy new year, and increased prosperity for their collections.

ONCIDIUM HYBRIDUM.

A VERY interesting hybrid Oncidium, the first garden hybrid in the genus, was exhibited by Messrs. Charlesworth & Co. at the R.H.S. meeting held on December 21st, to which a Certificate of Appreciation was given. Its parents were O. tigrinum and O. lamelligerum, belonging to quite distinct sections of the genus, and the seedling is $5\frac{1}{2}$ years old from the date of sowing the seed. The plant bore three flowers, one of which, together with the inflorescence, has been kindly sent. Messrs. Charlesworth remark, "The plant is fairly intermediate, but not a robust grower by any means, and you will see that O. tigrinum has reduced the length of the lamelligerum scape very considerably." Both in the twining scape and the shape of the flower the lamelligerum character largely preponderates, the chief difference being in the modified shape of the front lobe of the lip, which is membranous, clear yellow, and much undulated, in fact approaching O. tigrinum in texture, though much smaller, and reflexed. The sepals are yellow, much suffused with dusky brown, and have much of the spathulate shape of O. lamelligerum. The petals are spathulate-oblong, acuminate, undulate, and bright yellow blotched with brown. The crest of the lip is nearly circular, with many teeth, while the column wings also show much of the lamelligerum character. It will probably improve much as the plant becomes stronger. There are several natural hybrids in the genus, and we should much like to see these plants now receiving a little attention. The remark applies specially to the O. Forbesii and O. prætextum group, which contains forms of doubtful origin.

PAPHIOPEDILUM FAIRRIEANUM.

THE annexed figure represents a very beautiful group of Paphiopedilum Fairrieanum in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and is reproduced from a photograph kindly sent by Mr. Wrigley, accompanied by a very interesting cultural note from his gardener, Mr. Rogers.

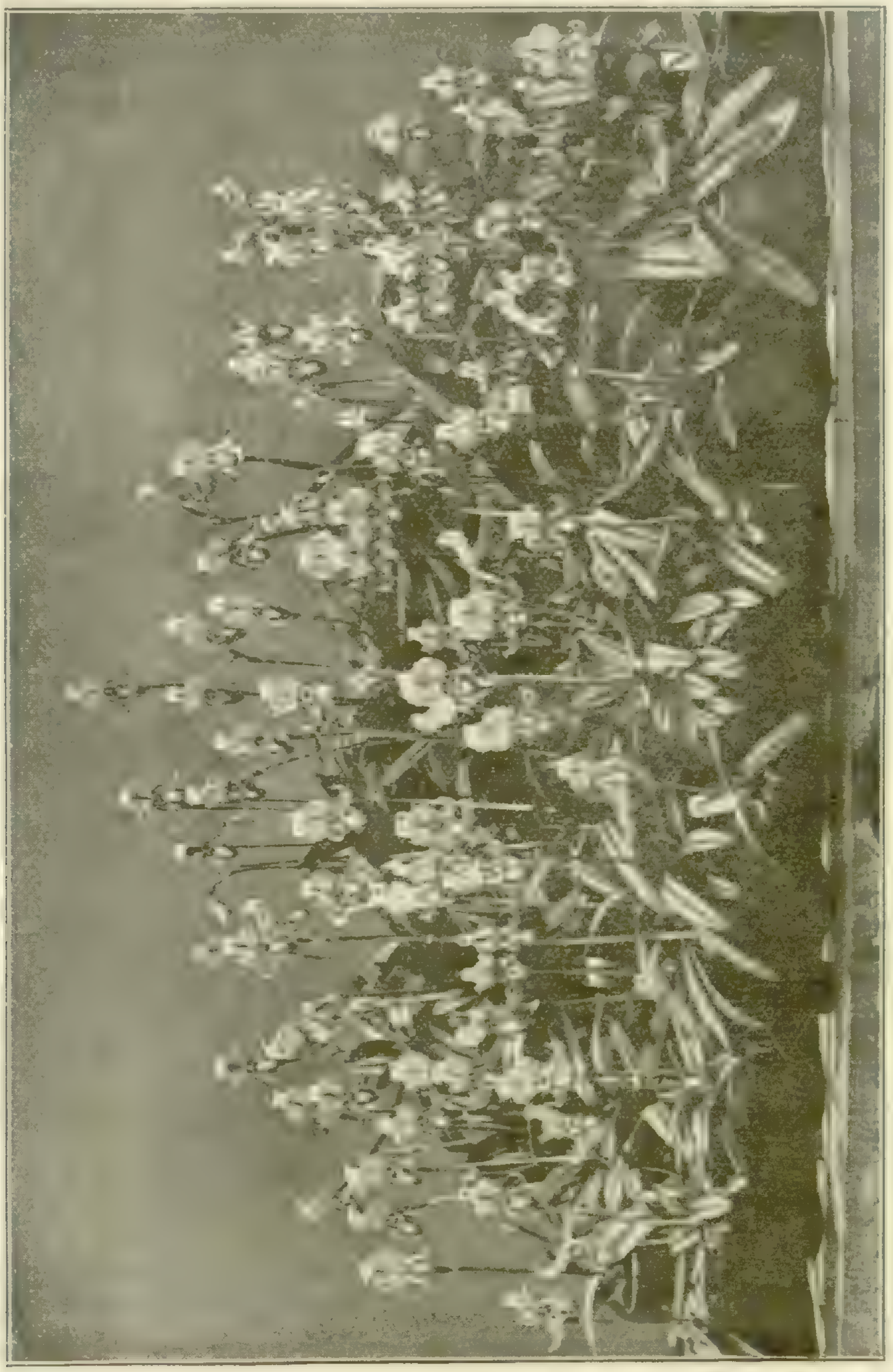

FIG. 1. GROUP OF PAPHIOPEDILUM FAIRRIEANUM, GROWN AT BRIDGE HALL, BURY.

The latter remarks that "the group is made up of 33 plants, bearing 81 flowers, some of them very fine forms. One of the plants, bearing four flowers, has a lower sepal as large as the upper, and similarly coloured. Twenty-five small plants just imported were purchased at Messrs. Protheroe & Morris' Rooms in March, 1906, and twelve others from Messrs. Cypher in the following January. At first they did very badly, made no roots, and

looked as if they would never become established. Then the compost was changed, and now consists of about equal parts of peat and loam, with a good sprinkling of tufa broken up to about the size of peas, with the dust also included. The pots are also drained with tufa, and a few heads of sphagnum are pricked into the compost after potting. The plants are grown in the same house as P. insigne, and are watered freely during the summer, and syringed in the afternoon during hot weather." The result of this treatment is certainly excellent, and Mr. Wrigley remarks that "the plants are the picture of health, and show no signs of ever becoming the 'long lost Orchid' again." The variation is apparent in the figure, but much more so in the original photograph, which had to be reduced.

A photograph of a group of P. × Maudiæ is also sent, showing 25 plants with 27 flowers and buds. It is said to be a very free grower, and blooms from every little growth. Several plants of the variety magnificum are included, and are much finer than the type. Mr. Wrigley has now eighteen plants of this variety, all grown from a small plant with three leaves.

A PRACTICAL ASPECT OF MENDELISM.

Now that the mists which have hitherto surrounded Mendelism have been dispelled, and we recognize in it a simple discovery—or rather *rediscovery*—of segregation, which is only another name for our old and very familiar friend, the dissociation of mixed character in hybrids, it may be well to glance at one or two practical aspects of the question. The term rediscovery is used advisedly, for segregation—*and in peas*—was not originally discovered by Mendel. As long ago as October 15th, 1822, a paper was read before the Horticultural Society of London by Mr. John Goss, entitled "On the Variation of the Colour of Peas, occasioned by Cross Impregnation" (*Trans. Hort. Soc.*, ser. 1, v. pp. 234-236), in which the following occurs:—

"In the summer of 1820, I deprived some blossoms of the *Prolific blue* of their stamina, and the next day applied the pollen of a *dwarf Pea*, and of which impregnation I obtained three pods of seeds. In the following spring, when these were opened, in order to sow the seed, I found, to my great surprise, the colour of the Peas, instead of being a deep *blue*, like their female parent, was of a *yellowish white*, like the male. Towards the end of the summer I was equally surprised to find that these white seeds had produced some pods with all blue, some with all white, and many with both blue and white Peas in the same pod.

"Last spring I separated all the blue Peas from the white, and sowed each colour in separate rows; and I now find that the blue produce only blue, while the white seeds yield some pods with all white, and some with both blue and white Peas intermixed."

A "Note by the Secretary" follows (pp. 236-237), which states "Previous

to the receipt of the above communication, one on the same subject was transmitted by Alexander Seton, Esq., and read at the Meeting of the Society on the 20th of August, 1822. Mr. Seton had happened to make a similar experiment, by impregnating the flowers of the *Dwarf Imperial*, a well-known green variety of the Pea, with the pollen of a white free-growing variety. Of the flowers so treated one only produced a pod, and it contained four Peas, which did not differ in appearance from the others of the female parent." . . . These seeds were sown, and plants were obtained which "seemed to partake of the nature of both parents." . . . "On their ripening it was found that instead of their containing Peas like those of either parent, or of an appearance between the two, almost every one of them had some Peas of the full green colour of the Dwarf Imperial, and others of the whiter colour of that with which it had been impregnated, mixed indiscriminately and in undefined numbers; they were all completely either of one colour or the other, none of them having an intermediate tint, as Mr. Seton had expected. The representation of one of the pods in Plate ix. Fig. 1 conveys a very perfect idea of its appearance."

Here is not only "Segregation," but also the so-called "Dominant" and "Recessive" characters, and the *coloured* figure gives a most graphic illustration of the points described. It is probable that Mendel never saw this particular paper, which antedates his own by over a period of forty years, and we call attention to it chiefly because justice has not been done to it, and in the volume recently reviewed in these pages (xvii. pp. 257-263) we do not find it even mentioned.

We now come to our own particular subject, and we find that "segregation" was observed, and commented upon very strongly, in the case of the very first secondary hybrid Orchid raised, namely, Læliocattleya fausta, which flowered in 1873, and was described under the name of Cattleya × fausta. Two quite distinct forms were described and figured at the outset, namely the type and variety radicans (*Gard. Chron.*, 1873, pp. 289, 290), while several other forms appeared later. Several of these were figured by Mr. Day (*Orch. Draw.*, xxx. tt. 31, 32; xxxix. tt. 3, 85), and in 1881 Mr. Day wrote:—"Two more plants of this charming hybrid have flowered . . . and they are very different from it and from each other. Mr. Seden tells me that they raised seven plants of it only (or that only seven had flowered), and they are all different. This he attributes to the fact that the pollen parent, Cattleya exoniensis, is itself a hybrid between C. Mossiæ and Lælia crispa, and some of the offspring have run back to their grandparents and some have taken more to their mamma, C. Loddigesii." This "segregation" manifested itself at the very earliest opportunity, and it has been observed and commented upon on countless occasions since.

Mendel's method of work was essentially different from that of the

hybridist, for having first raised his hybrids he then carefully isolated and self-fertilised them, in order to trace the inheritance of characters through succeeding generations. The hybridist has different objects in view. He continues to cross promising individuals in the hope of obtaining further improvements, but both methods afford an opportunity for dissociation of the mixed character, and the rearrangement of such characters as are present. It may perhaps be said that the hybridist only adopts the Mendelian method when having obtained a suitable hybrid he attempts to fix its characters so as to ensure its breeding true from seed. And this he was doing long before Mendel's experiments were made, and it is doubtful whether the latter's results with Peas would help him much in working with other subjects, because their behaviour would have to be ascertained by experiment.

But to the systematist the discovery of the dissociation of specific character in secondary hybrids should be of the greatest use. A good many plants have been described as species which are now known to be of hybrid origin, but it is frequently impossible to ascertain this by examination. Sterility of the anthers might be detected, but a good many hybrids are known to be fully fertile, and such plants are liable to be described as species if their history is unknown, at all events if they appear to be distinct. Now species are known to reproduce themselves true from seed, so that if any suspected plant on being self-fertilised showed dissociation of character its mixed origin would be at once revealed. It is probably not an unfailing test, because some hybrids are said to reproduce themselves true from seed, but the probability is that dissociation would manifest itself in the great majority of cases. In an experiment of this kind, of course, care would have to be taken to prevent any possibility of further crossing.

The reason for this dissociation is to be sought in what may be termed the permanence of specific character. A species reproduces itself true from generation to generation, its characters having become fixed under normal conditions through having followed the same cycle of existence through numerous successive generations. Different species show different phases of development according to the remoteness of their relationship, and the different phases through which they have passed since diverging from the common starting point. Hybrids differ from pure species in the fact that they combine different hereditary tendencies, and in their development they necessarily follow a different scheme from that of either parent. Hybrids thus combine conflicting elements, the result being a struggle for ascendancy and a compromise, which may be of a more or less temporary nature, the conflicting elements re-separating themselves at the earliest opportunity.

These facts were clearly appreciated by Mendel, who pointed out that if

in the foundation cell of the hybrid organism the compromise was complete, in the sense that the dissimilar qualities were entirely and permanently accommodated together, the hybrids would reproduce themselves true from seed, like any stable plant organism, but if the arrangement between the conflicting elements were only temporary they would liberate themselves when uniting to form the new generation. This dissociation would naturally result manifest itself in the variation of the offspring of the succeeding generation, in other words, the hybrid would not produce itself true from seed.

A hybrid may be described as a mosaic, an organism composed of more or less dissimilar cells, some more nearly resembling one parent, some the other, and this fact shows clearly the fundamental difference between primary and secondary hybrids. As the reproductive cells (pollen and ovules) formed by species are pure and uniform in character, it follows that the primary hybrids formed by their union are also fairly uniform, whatever the nature of the compromise. But the hybrids themselves, owing to their mosaic character, form reproductive cells in which the characters of the original species are represented in very varying proportions, hence the wide range of variation and varying amount of reversion seen in a batch of secondary hybrids, which phenomena gave rise to the conception of "unit characters."

This fundamental difference between primary and secondary hybrids shows the difficulty of dealing with them on a uniform system as regards nomenclature. The degree of resemblance between primary hybrids derived from forms of the same species permits of their being considered as forms of one, and also enables them to be recognized when their origin is not known, but neither proposition applies to secondary hybrids, owing to their erratic nature. How far these facts were appreciated when the Nomenclature Committee of the R.H.S. drew up its rules for the naming of hybrids is uncertain, but they have become increasingly apparent with the great development of hybridisation during recent years, which fact justifies the proposal to treat secondary and more complex hybrids as florists' flowers, naming only the choicer ones and ignoring the remainder. The necessity of such a course is now fully recognised. R. A. R.

CALENDAR OF OPERATIONS FOR JANUARY.

By W. C. PRICE, Oakdene, West Didsbury.

GENERAL REMARKS.—Owing to the very dull weather we had during the latter end of last year, very great care should be taken in watering the plants and in damping the houses, the absence of sun having made it very difficult to ripen the growths satisfactorily. Before watering a plant make

sure that it requires it, for at this time of the year it is much better to have a plant dry than to have it overwatered. If plants are overwatered at this season they may appear healthy for a time, but if the roots are examined afterwards you may find that they have nearly all rotted, but a plant that has been kept on the dry side will have nearly every root in a sound condition, and a plant that has kept its roots through the winter will give much better results than one that has to make new roots before it can begin to grow. Give only sufficient water to prevent the plants from shrivelling, always excepting those that are making new growths, which should have a little more, to help them to grow satisfactorily.

DAMPING DOWN.—The damping of the houses will have to be carefully attended to, according to the state of the weather. If it is a bright morning, give the houses a thorough damping, and they will only require the floor damping afterwards about two o'clock in the afternoon. On a dull and mild day give one damping in the morning, which will be sufficient for the day. During cold weather, when an increase of fire-heat is necessary, the amount of moisture must be increased accordingly, to avoid drying the plants too much, and to act as a check to red spider and thrip. Use the bottom ventilators to admit a supply of fresh air whenever the weather permits, if it is only for one hour per day.

CLEANSING THE HOUSES.—If not already done this should be attended to at once. Give all the woodwork a good washing down, inside and out, as it makes the houses a great deal sweeter, looks better, and admits a great deal more light to the plants, for which they will thank you by growing more sturdily. The plants themselves should also have a thorough wash with a good insecticide, diluted to the proper strength, and all old sticks should be replaced by new ones. It gives the plants a better appearance, and does them good to be thoroughly cleansed at this season, besides giving the grower a good start for the coming year by having a clean stock, which will save a lot of time later on, when it can ill be spared.

SPHAGNUM MOSS.—A good stock of this material should be got in at once, as very often during this month and next it is hard to get, owing to its being frost bound, and this causes a delay in commencing preparations for potting.

CYPRIPEDIUMS are now making a good show. The flowers should be neatly tied up to their sticks, which may be either dyed or painted green. They look much better when tied up than when left to hang in any direction, and have crooked stems, and are also more useful for cutting. Towards the end of the month any that have gone out of flower may be repotted, using pots large enough to last them till next season. If the compost they are in is sweet and good, they should not be disturbed more than possible, but if it is decayed every particle should be carefully picked out with a pointed stick, afterwards

working the new compost carefully among the roots to avoid breaking them. If an increase of stock of any particular plant is required, and it is strong enough to do so, divide the growths carefully with a sharp knife by cutting through the rhizome, being careful that each growth can be divided with a root attached to each. The divisions should be put into pots just large enough to hold them, and should be watered carefully till they have filled the pot with roots, when they should be shifted on into larger pots, in which they will probably flower next season.

A suitable compost consists of one third each of good fibrous loam, with the dust shaken out, good peat, and fresh chopped sphagnum moss. The loam and peat should be broken into pieces about the size of a walnut. Mix well together, and let it get warmed thoroughly before using. Fill the pots about one third full of crocks, and pot firmly, but not too hard. If you tell some people to pot firmly they think you mean hard, and ram the compost into the pots as if a steam roller had to go over them. In potting a Cypripedium, if it has any roots at all, pot just firmly enough to allow the pot to be lifted by catching hold of the plant without pulling it out of the pot. The test should not apply to heavy plants.

CYPRIPEDIUM SEEDLINGS should be placed in the warmest house and kept growing, potting on those that require it, and using the compost recommended above, but in a smaller state, to suit the size of the pots. Be careful to avoid giving a check in any way. Keep thrip off them by fumigating with X.L. All compound. Thrips seem to be very fond of the sweet leaves of Cypripedium seedlings, and must be kept off at all cost, or total loss will be the result.

DENDROBIUMS.—Many established Dendrobiums are now showing their flower buds, and it is a good plan to move the most forward at intervals from their resting quarters into a little more heat, as by doing this the flowering period is greatly extended. Take care that the plants do not have too much heat and moisture, or they will start too rapidly into growth, to the detriment of the flowers. Do not give much water at the root, just enough to keep the bulbs plump, for if they have too much the buds either turn yellow and drop off or the flowers are lacking in substance, and do not last as long in bloom. Newly imported plants should be laid upon a stage in an Intermediate house for a few days after arrival. They should then be well looked over, cutting away any decayed portions with a sharp knife, and also be well washed with a solution of insecticide. After they have dried they should be potted up into pots just large enough to hold them. Place a stick firmly to each, and tie the plants securely to them. Fill the pot about half full of crocks and bring the compost up to the base of the bulbs. Be careful not to bury the base of the bulb or else rot will set in, and most probably cause the loss of the entire plant. They should be kept in an

Intermediate house till March, giving them very little water, when they may be placed with the older-established plants for the rest of the season. Do not on any account try to force them into growth. A good compost for potting them in is half each of Osmunda fibre and sphagnum moss, well mixed together, and chopped about half an inch long, or, if preferred, Osmunda fibre may be used alone. I find that they do very well in either.

CATTLEYAS will mostly be at rest. C. Trianæ and its varieties, and C. Percivaliana, are pushing up their flower buds, and should have a little more water, but as soon as the flowers are over give little or no water till they commence to make new growths. C. intermedia and C. Warneri are now pushing new growths, but should not be hastened in any way. Let them grow steadily, with only enough water to keep them moving gently, or else they will make weak growth and the blooms will be unsatisfactory.

ODONTOGLOSSUMS.—In the Odontoglossum house we find most of the plants in full growth, and some are in flower, while a good many are throwing up spikes. I think these are the most useful Orchid we have. If one has a good collection, both in number and varieties, one is rarely then without a few spikes to look at. Practically they flower twice in eighteen months when properly grown. If any plants require repotting they can safely be done now, when the young growths are about one-and-a-half inches high. Fill the pot about one-third with crocks, and use a compost of polypodium fibre and sphagnum, half of each, chopped about half-an-inch long and thoroughly mixed together. It should be well moistened a day or two before using. Pot firmly, but do not put it in lumps. They will require very little water till they are well rooted. Do not let the thermometer get above 55° with fire heat in the day time, or below 48° at night. If a bright day 60° will do no harm when it is run up by the sun, so long as you have plenty of bottom ventilation.

INTERMEDIATE HOUSE.—Cœlogyne cristata and its varieties are now pushing up their flowers, and should be accorded enough water to keep them plump. If allowed to shrivel the flowers will be weak, and flag as soon as they are cut. Odontoglossum citrosmum is now at rest, and the plants should be suspended near the glass, and kept quite dry till the flower spikes show from the young growth. Cypripediums of the insigne class do well in this house.

TEMPERATURES for the month should be maintained as nearly as possible at the following figures, using judgment according to outside conditions:—

Cypripedium house: Day, 65° to 70°; night, 65°; morning, 60°.
Cattleya house: Day, 62° to 68°; night, 62°; morning, 58°.
Intermediate house: Day, 60° to 65°; night, 60°; morning, 55°.
Odontoglossum house: Day, 55° to 60°; night, 53°; morning, 50°.

CATTLEYA × IRIS, VAR. KING EDWARD VII.

THIS beautiful variety flowered in the collection of H. S. Goodson, Esq., Fairlawn, Putney, last September, when a fine photograph was kindly forwarded, which is here given on a reduced scale, being altogether too large for our page. A flower was also sent at the time, and was noted at page 318 of our last volume as "a magnificent form, having reddish buff

Fig. 2. CATTLEYA × IRIS, VAR. KING EDWARD VII.

sepals and petals, the latter over two inches broad, and the front lobe of the lip very undulate, rich carmine purple, and 2½ inches broad, while the short side lobes are salmon-coloured. Mr. Day considers it to be one of the most beautiful he has ever seen." Cattleya × Iris is one of the best of Messrs. Charlesworth's hybrids, and the shape and quality of this variety can be judged by the illustration.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 23rd last, when there was a very fine display of Orchids, and the awards consisted of five medals, four First-class Certificates, three Awards of Merit, and one Botanical Certificate.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Læliocattleya Barbarossa, Westonbirt var. (C. Trianæ Imperator × L.-c. callistoglossa), a very fine hybrid, having light magenta-rose sepals and petals, and a rich ruby-red lip, shaded with mauve, with some deep yellow in the throat. An Award of Merit was given to Cattleya × Dirce superba (Vulcan × Warscewiczii), a rich purple flower with some paler lines in the throat of the lip. He also sent a fine example of L.-c. Golden Beauty (Ernesti × Henry Greenwood) bearing a fine spike of 12 orange-yellow flowers, with a ruby-crimson lip, and L.-c. Pauline (L.-c. Ophir × C. labiata alba), having cream-yellow flowers, and a rosy mauve lip with yellow lines at the base.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a First-class Certificate for the remarkable Cirrhopetalum logissimum, whose history was given at page 373 of our last volume.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), received an Award of Merit for Læliocattleya King Manoel (parentage unrecorded), having reddish orange sepals and petals, and a rosy crimson lip with a yellow throat.

Gurney Wilson, Esq., Glenthorne, Haywards Heath, received a Botanical Certificate for Bulbophyllum hirtum, a curious North Indian species bearing arching racemes of greenish hairy flowers.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent the beautiful white Calanthe × Cooksonæ (vestita luteo-oculata × Harrisii), and Cypripedium Sanacderæ Cooksoni, a superb yellow flower with white apex to the dorsal sepal.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent a fine specimen of Cypripedium × Ville de Paris, bearing five flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Cattleya × Hardypitt (Hardyana × Mrs. Pitt), a pretty little rose flower with a darker lip, and Odontoglossum crispum Cooksoni.

G. P. Walker, Esq., Putney Heath (gr. Mr. McGregor), sent Brassocatlælia Surprise (C. bicolor × B.-l. Veitchii), having greenish sepals and petals, and a slightly fringed white lip with some purple markings.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including the handsome Cattleya × Venus var.

King Manoel, a fine yellow flower with a rich crimson lip, C. × lucida with two fine spikes, the best having 13 flowers, C. × Rhoda, Odontoglossum × armainvillierense xanthotes, a fine Cypripedium × Hitchinsiæ (Charlesworthii × insigne Harefield Hall var.), &c. A First-class Certificate was given to Læliocattleya Nelthorpe Beauclerk (L.-c. Gottoiana × C. Enid magnifica), a remarkably fine hybrid, having yellowish sepals and petals irregularly flushed with rose, and a large purple-crimson lip lined with orange-yellow at the base. An Award of Merit was given to Zygocolax Charlesworthii (Z. × Perrenoudi × Colax jugosus), having the sepals and petals closely marked with chocolate, and the lip violet with a white margin.

Messrs. James Veitch & Sons, Chelsea, received a Silver Flora Medal for a beautiful group of Cypripedes, including a beautiful series of C. Fairrieanum, C. Spicerianum, and C. insigne Sanderæ, with C. i. Harefield Hall var., some good C. × Leeanum, C. × Arthurianum, C. × Milo superbum, C. × Thalia, C. × vexillarium with five flowers, and other good things.

Mr. W. Bolton, Wilderspool, Warrington, received a First-class Certificate for Cypripedium × Boltoni, a very beautiful hybrid supposed to have been derived from C. insigne Sanderæ and C. bellatulum album. The leaves are mottled, and the flowers white, with a few purple dots on the basal part of the dorsal sepal.

Messrs. Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group of Cypripedes, including C. insigne Harefield Hall var., C. i. Sanderæ, C. Fairrieanum, C. × Niobe, C. × Maudiæ, C. × Leeanum, and other good things.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a pretty group, including some good Cattleya labiata, C. l. Queen Maud, a pretty white form tinged with lavender, C. Bowringiana lilacina, the distinct Oncidium varicosum concolor, described at page 365 of our last issue, Ionopsis paniculata, Epidendrum vitellinum, Cycnoches chlorochilon, Læliocattleya Decia, and a number of good Cypripedes.

Messrs. J. & A. A. McBean, Cooksbridge, also received a Silver Banksian Medal for a good group, including three specimen plants of Cypripedium insigne Sanderæ, the best with 16 flowers, a fine C. × Lord Derby, C. × Shillianum and others, with a few good Odontoglossums.

Messrs. Armstrong & Brown, Tunbridge Wells, sent a few good Orchids, including a fine dark Odontoglossum × Lambeauianum, Cypripedium × Germaine Opoix, C. × Thalia, C. × Mrs. Francis Wellesley, and a fine Dendrobium Cœlogyne.

Messrs. William Bull & Sons, Chelsea, showed Cypripedium × Emerald (Sallieri Hyeanum × Leeanum giganteum), a pretty greenish flower, with minute dots on the dorsal sepal.

Messrs. Stanley & Co., Southgate, sent Cypripedium × nitens, C. × Leonidas, and several yellow forms of C. insigne, including C. i. Stanleyi, a clear yellow flower without any brown hairs on the petals, which should be compared with C. i. Gladys.

M. Maurice Mertens, Ghent, sent a few choice hybrid Odontoglossums.

At the meeting held on December 7th there was again a good show of Orchids, though less in the way of novelty, and the awards consisted of five medals, one Award of Merit, and one Botanical Certificate.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a good group, including a fine plant of Odontioda Bohnhoffiæ, Cypripedium × Minos, C. × Maudiæ, C. × triumphans, C. × Madame Jules Hye, a fine lot of C. insigne Sanderæ and others, with some good Odontoglossums, Læliocattleyas, &c.

F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, received a Botanical Certificate for Monomeria barbata, a rare and interesting Orchid whose history is given at page 30.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), sent the fine Cypripedium × Arethusa, C. × Draco (Euryades × insigne magnificum), with handsomely spotted dorsal sepal, C. × Dawn, having a white dorsal sepal with purple median band, and C. × Euryades leopardinum.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent two plants of the fine Læliocattleya Epicasta Colmaniæ, each bearing a three-flowered spike.

C. L. N. Ingram, Esq., Elstead House, Godalming (gr. Mr. Bond), sent Læliocattleya Susiana (C. maxima × L. Dayana), and L.-c. Simonette (elegans Turneri × Ingramii).

The Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), showed Cypripedium × Lord Ivor (Leonidas × Mrs. Wm. Mostyn), a very richly coloured flower.

E. Rogerson, Esq., Oakdene, West Didsbury (gr. Mr. Price), sent Cypripedium insigne albidum, having a broad dorsal sepal with a large white area.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed a number of good Cypripedes, including C. × etoniense, C. × Thalia The Baron, C. × elatior splendens (Leeanum giganteum × Baron Schröder), C. × Emperor (Beeckmanii × Sallieri), and C. × memoria Mostyni (Actæus × langleyense × aureum Surprise), a light-coloured flower of good shape, and the white dorsal sepal having some dark spots on the emerald green base.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a choice group, including a number of good Odontoglossums, Cypripedium ×

Alcibiades illustre, a large and handsome form, C. × Closianum, an ally of C. × Leeanum, having a finely spotted dorsal sepal, a fine series of C. insigne varieties, &c. An Award of Merit was given to C. × Lion (Boadicea × Sallieri Hyeanum), a large and handsome flower, in the way of C. × Lathamianum, having a white dorsal sepal with a light rose suffusion in the centre and a purple median band, and the petals and lip yellow green tinged with brown.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a choice group, including some showy Sophronitis crosses, a good Odontoglossum × Fascinator, a richly coloured O. × armainvillierense (obtained from O. Pescatorei Charlesworthii × O. crispum Graireanum), some handsomely blotched O. crispum, raised from seed, a beautiful form of Cattleya × Octavia, a fine cluster of the brilliant Lælio-cattleya Charlesworthii, and another cluster of Calanthes in the centre.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a fine group of Cypripediums, including a fine series of C. insigne forms, C. × Mr. F. Sander, a fine dark flower, C. × Minos Veitchii, some good C. × Euryades, C. Fairrieanum, C. × Charlesianum, Cypher's var., the handsome C. × G. F. Moore, &c. There was also a plant of the dark red Masdevallia × bockingensis.

Messrs. Mansell & Hatcher, Rawdon, Leeds, also received a Silver Banksian Medal for a good group, including Maxillaria elegantula and M. grandiflora, Brassolælia Jessopi, Cypripedium insigne Bohnhoffianum, C. × triumphans, C. × Marjorie, C. × gigas superbum, C. × Leeanum magnificum, and others.

Messrs. J. & A. A. McBean, Cooksbridge, sent Cattleya labiata alba Kathleen, a beautiful white flower with a purple-crimson blotch on the front of the lip.

Mr. E. V. Low, Orchid Nursery, Haywards Heath, sent a fine example of Oncidium ornithorhynchum album. Cymbidium erythrostylum, Dendrobium Dearei, and a number of good Cypripedes.

Messrs. Stuart Low & Co., Bush Hill Park, staged a beautiful Cattleya × Raphaeliæ. Cirrhopetalum Medusæ. Cypripedium × Beryl, and various other Cypripedes.

M. Mertens, Ghent, sent several good hybrid Odontoglossums.

Mr. H. A. Tracy, Twickenham, sent Cypripedium × Floryanum (Charlesianum × Leeanum giganteum).

A meeting of the Committees was held on December 21st, when some very choice plants were exhibited, and the awards consisted of five First-class Certificates, one Award of Merit, and one Certificate of Appreciation.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis)

received a First-class Certificate for Odontioda keighleyensis, Fowler's var. (C. Nœtzliana × O. cirrhosum), a remarkably fine variety.

M. F. Lambeau, Brussels, received a First-class Certificate for Lælio-cattleya Firminii (L.-c. Ceres × C. Dowiana aurea), a very handsome hybrid, comparable with the latter in size, and having flame-coloured sepals and petals, and a crimson lip, with two yellow blotches in the throat, and some yellow lines at the base.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Cypripedium × Alabaster magnificum (Godseffianum × Alcibiades superbum), a very fine hybrid, most like the latter, and having broad yellowish petals and lip, tinged with purple brown, and a white dorsal sepal, with a purple band up the centre and some smaller lateral lines, a small area at the base being green.

Messrs. Charlesworth & Co., Haywards Heath, sent Oncidium × hybridum (tigrinum × lamelligerum), a very interesting hybrid and the first raised by hand, the Certificate of Appreciation being awarded. It is described at page 8. They also received a First-class Certificate for Zygocolax Charlesworthii var. rubida (Z. × Perrenoudi × Colax jugosus), a very fine variety, with cream white sepals and petals heavily barred with reddish purple and the lip ruby-red, shaded with purple.

Messrs. Sander & Sons, St. Albans, received a First-class Certificate for Dendrobium Phalænopsis album, Sander's var., a very fine pure white form, and for Cypripedium × Mrs. F. Sander (Eve × insigne Sanderæ), a beautiful greenish-yellow flower, with the greater part of the dorsal sepal white, and the petals and lip tinged with light purple.

Several other good things were shown beside those certificated, but there was no general show on this date. Cypripedium × Caruso (J. Howes × insigne Harefield Hall var.) was an interesting thing shown by Col. Holford, and most resembled the second parent, though with more purple markings.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting was held at the Coal Exchange, Manchester, on November 18th, when there was a very good show, and over eighty plants were placed before the Committee, the following members being present: Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Warburton, Sander, Keeling, Shill, Cypher, Parker, and, by invitation, Mr. J. T. Clifton.

Z. A. Ward, Esq., Cringlewood, Northenden (gr. Mr. Weatherby), staged a specially fine group of mixed plants, which well merited the Silver-gilt Medal awarded. The bulk of the group was composed of very fine pots of Cypripedium insigne Sanderæ, several of them bearing upwards of a dozen well-developed flowers. Intermixed with them were other varieties of C.

insigne yellow and spotted, plants of C. Fairrieanum, C. œnanthum superbum, and at the back some strong plants of Odontoglossum × Phœbe, O. × ardentissimum, O. × Rolfeæ, O. × spectabile, and Oncidium tigrinum, all showing evidence of good culture.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a good group of Cattleyas and Lælias, with other well-grown plants. Cattleya labiata Moorfield var., and a Læliocattleya from L.-c. Aphrodite × C. Warneri both gained Awards of Merit. I noted several strong plants of Calanthe × Kenneth, Zygopetalum Mackayi, Vanda cœrulea, Læliocattleya × La France, &c. (Silver-gilt and Silver Medals).

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a small but very select group, which gained two Silver Medals. Cattleya × amabile var. Floatii (labiata Gilmourii × Countess of Derby), a fine flower with white sepals and petals and large dark lip, received a First-class Certificate, the same award going to the pure white C. labiata var. Mrs. J. T. Clifton. Awards of Merit were gained by C. l. var. Jas. Lowther, C. × Lord Rothschild Clifton's var., C. × Hardyana Clifton's var., C. × Fabia var. Lady Loundon, C. × Portia gigantea, and Læliocattleya × Marathon superba, Oncidium bicallosum and O. b. aureum. Several botanical species were sent, viz.: Dendrochilum uncatum, Bulbophyllum mirum, Angræcum pellucidum, and two unnamed Angræcums, both very distinct, all gaining First-class Botanical Certificates. Several other botanical species gained Second-class Certificates.

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), gained a Silver Medal for a nice group of Cypripediums, which contained C. × Priam, C. × Hitchinsiæ, many varieties of C. Fairrieanum, and the fine C. × Earl of Tankerville. C. × vexillarium var. Rex, and C. Farrieanum var. Orpheus both received Awards of Merit.

Charles Parker, Esq., Preston, staged an effective group of Cypripediums, which included C. × Sir Redvers Buller, C. × Maudiæ, and several of the better yellow C. insigne varieties (Silver Medal).

N. Galloway, Esq., Great Horton, Bradford, staged a mixed group, in which I noted Cypripedium × Minos Youngii, C. × Rossetti, C. × radicans, C. × Parkerianum, C. Beauclerc superbum, &c. (Bronze Medal).

E. Timperlake, Esq., J.P., Wood Lea, Worsley, staged a fine batch of Cattleya labiata varieties, all well flowered (Silver Medal).

J. Rutherford, Esq., M.P., Blackburn (gr. Mr. Lupton), received a First-class Certificate for a good blotched Odontoglossum crispum Masreelii, and Awards of Merit for O. c. Amelia, O. × ardentissimum var. Lucitoria, Cattleya labiata Cyme, and Cypripedium × Nanus.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), showed Odontoglossum crispum var. A. J. Balfour, a fine blotched seedling

(First-class Certificate), and O. c. Empress of India (Award of Merit). I noted Cypripedium × Thalia giganteum, C. insigne Harefield Hall var., &c.

Ed. Rogerson, Esq., Didsbury (gr. Mr. Price), received Awards of Merit for Odontoglossum crispum Maurice Preston, O. c. var. Thos. E. Preston, Cattleya × Frederickiæ var. Mrs. Parker, and Cypripedium × E. C. Rogerson. I noted also C. × Thalia giganteum.

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent Cypripedium × Thalia Mrs. Francis Wellesley.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent Cypripedium × Mrs. Cary Batten.

W. R. Lee, Esq., Plumpton Hall, Heywood, gained an Award of Merit for Cypripedium × Hitchinsiæ var. W. R. Lee. I noted C. × Thalia Mrs. Francis Wellesley, C. × triumphans, C. × Leeanum Clinkaberryanum, and C. × Simonii Rubens.

Messrs. Cypher & Sons, Cheltenham, gained a Silver Medal for a group of good things, in which I noted the best types of Cypripedium insigne, yellow and spotted, a fine C. i. Laura Kimball, Cattleya × Massaiana, &c.

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, sent a nice group, including Cypripedium insigne Harefield Hall var., C. i. Sanderæ, C. × Milo, Pilumne nobilis, and plants of Odontoglossum crispum of excellent type, with enormous bulbs. Cypripedium × Leeanum Westgate Hill var. gained an Award of Merit.

The Liverpool Orchid and Nursery Co., Gateacre, gained a Bronze Medal for a small group, including some good Cattleyas, Cypripediums, &c.

Mr. J. Birchenall, Alderley Edge, showed several plants, including Oncidium abortivum, Chondrorhyncha Chestertoni, &c.

Mr. W. Bolton, Wilderspool, Warrington, sent Cypripedium × Niobe Westonbirt var., C. × aureum, and a good variety of C. × Hitchinsiæ.

Messrs. Stuart Low & Co., Enfield, sent Cattleya × Maggie Raphael, the pure yellow Oncidium varicosum concolor, and Sophrocattleya Saxa, the two latter gaining Awards of Merit.

Messrs. McBean, Cooksbridge, sent Odontoglossum crispum xanthotes White's var.

Mr. W. Shackleton, Great Horton, Bradford, staged a small group of plants of good type.

The high quality and quantity of exhibits were fully maintained at the meeting held on December 2nd, the Committee present being:—Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Arthur, Sander, Warburton, Shill, Keeling, Holmes, Ashton, Cypher, Parker, and Weathers (Hon. Sec.).

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a fine mixed group (Silver-gilt Medal), and a detached group of Cattleyas, species and

hybrids (Silver Medal). Awards of Merit were given to Cattleya × Cooksonæ, Læliocattleya × Bella var. alba, L.-c. × Whiteleggei, and L.-c. Rubens var. Lambeauiæ. The group included many well-grown Oncidiums, Calanthes, a fine Cœlogyne Dayana, and the dainty Odontioda Bohnhoffiæ with four spikes.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), gained a Silver Medal for a choice group, including Cypripedium × San-ac-deræ, C. × Actæus The Gem, Miltonia Warscewiczii var. Weltoni, &c., with the following, each of which received an Award of Merit: Odontoglossum crispum var. Oakwood Queen (a good spike of flowers of exceptional size and shape), O. × ardentissimum Chapmanii, O. × Adrianæ superbissimum, O. × percultum punctatum, Calanthe × William Murray, C. × Norman (colour fine), C. × Chapmanii var. roseum, and Cypripedium insigne Sanderæ Cookson's var., a self-fertilized seedling, and distinct.

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), received two Silver Medals for a group, which contained many fine hybrid Cattleyas and Lælias, some good Oncidiums and Odontoglossums, and a fine selection of Botanical species for which the collection is already famous. A specially fine plant of Angræcum sesquipedale, carrying seventeen flowers on four spikes, received a Cultural Certificate: Læliocattleya Bella var. alba and Cattleya × Henry Clifton (Enid × labiata) gained Awards of Merit, while First-class Botanical Certificates went to Phalænopsis rosea, P. denticulata, and Ionopsis paniculata.

G. S. Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), received a Silver Medal for a miscellaneous group of well-grown plants, which included good specimens of Vanda cœrulea, Chondropetalum Fletcheri, Cypripedium × Gaston Bultel, C. × Leeanum Corona, and other Leeanums and C. insigne in variety. Bulbophyllum maculosum gained a Second-class Botanical Certificate.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a small but choice group of Cypripediums, several of which were new (Vote of Thanks). Awards of Merit were given to Cypripedium × elatior splendens (Leeanum giganteum × Baron Schröder), a flower much like C. × Thalia, C. × King Emperor (Beeckmanii × Sallieri), fairly intermediate in character, C. × Lady Arundel (Leeanum × aureum virginale), C. × etonense, and Læliocattleya × Ophir Westfield var.

J. H. Bromilow, Esq., Rainhill, Lancs. (gr. Mr. Morgan), staged a select group of Cypripediums, including C. Thalia var. Mr. F. Wellesley, C. × Earl of Tankerville, C. Fairrieanum var. Orpheus, a fine flower with dark purple lines, &c. (Silver Medal). C. × Thalia var. Marjorie and C. × Actæus Madeline gained Awards of Merit.

Chas. Parker, Esq., Ashton-on-Ribble, staged a good group of

Cypripediums in great variety, including C. × triumphans Jules Hye's var., C. × Sir Redvers Buller, C. insigne Harefield Hall var., and other C. insigne and C. × Leeanum of many varieties (Silver Medal).

Norman Galloway, Esq., Great Horton, Bradford, sent a representative group of Cypripediums, including many good and well-known varieties, for which he received a Silver Medal.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a group of Cattleyas, Lælias, and hybrids, with Cypripedium × Harry Lauder (Silver Medal). Cattleya × Maggie Raphael var. alba received an Award of Merit.

H. Arthur, Esq., Blackburn, received a Bronze Medal for a group of Cypripediums, including C. × Maudiæ, and many types of C. insigne, yellow and spotted. Oncidium Forbesii Arthur's var., a large and dark flower, gained an Award of Merit.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Cattleya × Peetersii var. J. J. Holden (First-class Certificate), and Cypripedium × Chapmanii Holden's var. (Award of Merit).

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent the fine Cypripedium × F. W. Ashton, C. × Priam, C. × Beryl, and C. × San-ac-deræ.

J. Rutherford, Esq., M.P., Blackburn (gr. Mr. Lupton), sent a small group, which included Odontoglossum Rossii album, and Cattleya × Octave Doin.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed the beautiful Cypripedium × Boltoni, a flower of unrecorded parentage, but closely allied to C. × Venus, and of the purest white, with minute purple dots distributed over the lower and central portion of the dorsal sepal (First-class Certificate and Silver Medal).

W. R. Lee, Esq., Plumpton Hall, Heywood, sent Cypripedium × Fair-Maud, W. R. Lee's var. (Award of Merit).

Messrs. Cypher & Sons, Cheltenham, received a Silver Medal for a good group of seasonable Cypripediums, which included many good forms and varieties of C. insigne and C. Leeanum, and several unnamed seedlings.

Messrs. Mansell and Hatcher, Rawdon, Leeds, sent a nice group of miscellaneous plants. Maxillaria elegans received an Award of Merit, and Zygopetalum Burkei a First-class Botanical Certificate.

Mr. J. Robson, Altrincham, sent Cypripedium insigne Harefield Hall var., C. × Thalia, Mrs. F. Wellesley, and several fine Odontoglossums.

Mr. Wm. Bolton, Warrington, sent Cypripedium × Leeanum Clinkaberryanum, C. × Actæus magnificum and several fine pans of C. insigne Sanderæ.

Messrs. Sander & Sons, St. Albans, sent the fine Cypripedium ×

Alcibiades var. illustre which had been previously Certificated, but being shown in excellent form the Committee voted it a Silver Medal.

Messrs. Keeling & Sons, Bradford, Stuart Low & Co., Enfield, and Mr. W. Shackleton, Great Horton, received the thanks of the Society for exhibits.

ORCHIDS IN SEASON.

A FLOWER of a seedling Læliocattleya is sent from the collection of W. R. St. Quintin, Esq., Rillington, Yorks, by Mr. F. C. Puddle, who records the parentage as C. gigas imperialis × L. Perrinii. It is a form of the beautiful L.-c. Rothschildiæ (*Orchid Stud-Book*, p. 114) originally raised by Messrs. Veitch, and flowered in 1895. It has rosy lilac sepals and petals, and the front of the lip dark purple with a white throat.

A flower of the brilliantly-coloured Cattleya × lucida is sent from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow. It is a seedling from C. Bowringiana and C. Schilleriana, now bearing a three-flowered spike. The flowers are deep shining purple, with a pale throat to the distinctly three-lobed lip, and the petals are slightly undulate.

A flower of Paphiopedilum × Mrs. G. Miller is sent by Mr. C. Robertson, Westwood, Bothwell, Lanarkshire, who raised it from P. × Actæus splendens ♀ and P. × aureum Hyeanum ♂. The flower is of good shape, and the colour light green, with numerous minute dusky dots on the dorsal sepal, which is margined with white, while the petals have a narrow brown line down the middle, and many minute dusky dots on the basal part. An analysis of parentage shows that the three species P. insigne, P. Spicerianum, and P. villosum are concerned in its ancestry.

Paphiopedilum × Katherine Furze is a handsome hybrid sent from the collection of Mrs. Ross, Florence, Italy. It is a hybrid from P. × Sallieri crossed with a species of the tesselated leaved group, but which is uncertain. The leaves are handsomely marbled, somewhat after the fashion of P. × Harrisianum, and the scape is tall, while the flower is good in shape, colour and markings. The dorsal sepal is white, closely lined with light purple-brown, and spotted at the base, while the lip and petals are coppery brown, the latter having many dark brown spots on the lower half. It is named after the daughter of J. A. Symonds, Esq., widow of the well-known artist, Charles Furze.

A flower of another seedling from Cattleya bicolor × Læliocattleya La France, noted on page 374 of our last volume, is sent from the collection of W. R. St. Quintin, Esq., and Mr. Puddle remarks that the influence of the second parent is now clearly shown. In this case the colour of Lælia tenebrosa is apparent in the lip. It is proposed to call the hybrid Læliocattleya Garnet. It will be interesting to see if any seedling shows the character of Cattleya bicolor. A spike of Epidendrum fragrans is also

sent, the plant having been collected by a friend in Bahia. The species is rather widely diffused.

A richly coloured Cattleya Percivaliana is sent from the collection of J. J. Neale, Esq,, of Penarth, by Mr. Haddon, together with the charming little Odontoglossum nævium, Dendrobium glomeratum, Restrepia maculata, Masdevallia triangularis and M. Schrœderiana. Two very diverse forms of a hybrid raised in the collection from Paphiopedilum hirsutissimum × nitens are also sent. They are forms of P. × Erato, and both show most of the hirsutissimum character.

BRAZILIAN ORCHIDS: SOME FURTHER NOTES.

By J. J. KEEVIL, Santos, S. Brazil.

SEVERAL "popular" articles on Orchids have appeared lately in various magazines. One of the keynotes in these has been the extreme dangers attendant on Orchid collecting, and gruesome details of lives lost by starvation, encounters with savages, &c., are given.

This, fortunately, does not apply to the region from which I write. It can be reached in nineteen days comfortable travel on a Royal Mail steamer from Southampton and twenty minutes on a train at this end. A painstaking search on the very trees which edge this short railway will reveal Cattleya Leopoldi, C. intermedia, Miltonia spectabilis and a score of other species. At the terminus, a comfortable hotel faces the Atlantic and Africa, and attempts to vie with Monte Carlo with a casino, band, &c. A former British Consul, who resided here for eleven years, often declared to me that Dante must have had the surrounding scene in view when describing Paraiso. Some residents, however, regard this as hyperbole.

On a hill 200 yards from the back of the hotel, Oncidium sarcodes, and other Orchids which dislike the sea level, will be easily found. If collecting is the only object, long and arduous trips are not necessary. For years I wandered leagues for Lælia purpurata; the first plant to reward me was thirty odd miles away. A week ago, a hitherto despised wood, within a stone's throw of my own door, yielded them to me.

Since the publication of my "Notes" in the April number of the *Orchid Review* (pp. 97-99) I have enjoyed at least twenty Orchid hunts, which have added some 500 excellent plants to my own and double that number to the collections of friends.

The worst danger encountered was due to the ingenuity of a local sportsman (?). Tired of struggling through the woods in search of sparse game, he concealed his gun beneath the undergrowth, set the triggers at featherweight, attached thereto two strings, and stretched them across the track of a cotia (a small rodent). He then retired to a distance to await events. Shortly we returned that way, laden with Stanhopea insignis, &c.

A friend, a pace in front of me, tripped over the strings and exploded both barrels. Fortunately only a few twigs suffered, and a subsequent interview with the sportsman will, I think, prevent a recurrence of the incident.

A fair number of snakes have met their fate, but only five poisonous ones, viz., four Jararacas and one Urutu. The latter, "*moré suo*," struck at my gardener, who was last of the party, but again the aim missed.

A German professional Orchid collector, who for fifteen years has traversed the neighbouring woods for hundreds of miles, has been bitten by a variety of venemous snakes. Once he sat down on one, and naturally could sit on nothing else for weeks—but he is hale and hearty to-day.

I dread snakes, and when in the woods always carry a hypodermic syringe and a 10 per cent. solution of permanganate of potassium, which, applied immediately, is, my doctor says, a safe antidote, but I have never had occasion to prove it.

The valley described in April has been oft revisited. The majority of Cattleya intermedia there are of the usual type, but the comparatively rare exceptions are very interesting. The most beautiful, "*me judice,*" is of unstained white throughout, bar the front lobe, which, when seen with the other types, appears of perfect cœrulean blue, but a strict comparison with that colour shows a slight lilac tinge. (Is this variety well known?) [Var. cœrulea.—ED. . Another variety vies with Lælia purpurata in size and darkness of lobe, which contrasts abruptly with the rest of the flower. Occasionally the whole perianth, including the front lobe, is of uniform deepish rose tinge. Some have the outer termini of the side lobes very open and large, with a distinct yellow tinge at their juncture, causing a discreet doubt as to the relations of a distant ancestor with C. Harrisoniana. Though the majority are absolutely scentless, a few possess a powerful rose-like perfume.

I had the good fortune on several occasions to see Cattleya intermedia fertilised by a bee, resembling the English Humble bee, but treble its size. The insect settles clumsily on the front lobe, and at once weighs down the labellum from the column. It speedily reaches the nectary. "*Ut revocare gradem, hic opus hoc labor.*" It appears as though caught in a trap, and its struggles threaten to dislocate the flower. Gradually it emerges backwards, and the pollen, in a most lifelike way, affixes itself to always the same spot on the back of its neck. The bee settles on the nearest firm spot, apparently in a furious temper, and tries hard to remove the pollen, but only knocks off the case. The stigma of the next flower visited relieves him of the burden on his return journey from the nectary. Occasionally the side lobes are forced beneath the column, which remains exposed after fertilisation.

Regarding natural hybrids: Lælia purpurata seems to mix with Cattleyas Leopoldi and intermedia in a variety of ways, and it is sometimes a puzzle

whether to call a flower Læliocattleya elegans or L.-c. Schilleriana, so great is the range of variation.

I have a plant from the woods, thought to be Cattleya × Heathii. In habit it is fairly intermediate between its supposed parents. The flowers so far have been all malformed, the petals being connate. These and the sepals take after C. Harrisoniana in colour; the lip favours C. Walkeriana, but is of lighter hue.

RAISING ORCHIDS FROM SEED.

A CORRESPONDENT suggests that we should give an article on raising Orchids from seed, remarking that it would be of great interest to many amateurs who, like himself, have never been able to raise any plants from seed.

We hope to devote a little more space to the subject, and will commence with a few suggestions as to possible causes of failure. Several persons have remarked that they have sown what was apparently good seed, but no seedlings resulted. This may have been because the seed was not good, or because the almost microscopic seedlings died before they were large enough to be noticed. A few hours drought will do this. When once the seed is sown the compost should never be allowed to become dry. A good Cattleya or Lælia capsule—say L. cinnabarina—would be a good subject to commence with. Take an established plant of which the compost is in good condition, and will not require disturbing for some time, and sprinkle a little seed thinly on the surface, at the same time making up a pan of new compost in some moist shady corner of the house, and sprinkling a few seeds on this also. The seeds, when examined under a pocket lens, should look slightly thickened and opaque in the centre. The compost should be kept constantly moist and shaded, but in other respects it may be treated in the ordinary way. The seeds should be examined with the lens pretty frequently to watch their progress. If all goes well they will begin to swell, soon becoming tiny green globules, after which a small growing point will be noticed, which will be followed by the production of a few root hairs, and then a true root, and a minute leaf. After this stage is reached they may generally be considered safe. We shall be glad to hear the result of any trials made in this way, and we may add that epiphytic Orchids generally begin to grow at once, and as they remain on the surface of the compost their progress can be watched.

MONOMERIA BARBATA.—This very interesting little Orchid was exhibited at the R.H.S. meeting held on December 7th last, by F. W. Moore, Esq., Keeper of the Royal Botanic Garden, Glasnevin, and received a Botanical Certificate. The genus was described by Lindley in 1830 (*Gen. & Sp.*

Orch. p. 61), and is allied to Bulbophyllum, but differs in having a long attenuated foot to the column, on which the lip and lateral sepals are inserted at some distance apart. The pollinia are also inserted on a stipes and gland, as in the Vandeæ. At the time Lindley described it as the only Orchid without petals, but this is a mistake, for the petals are present, but reduced to a few minute teeth situated on the foot of the column. It is a native of Nepal, Sikkim, and Khasia, and is well figured by King & Pantling (*Ann. Roy. Bot. Gard. Calc.* viii. p. 152, t. 208). The only other species is M. Crabro, Rchb. f. (*Trans. Linn. Soc.*, xxx. p. 143), a native of Moulmein.—R.A.R.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during January, on the 11th and 25th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for February 8th, when the Annual General Meeting will be held at 3 p.m.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 6th and 20th. The Committee meets at noon and the exhibits are open from 1 to 4 p.m. The following meeting is fixed for February 3rd.

Figures of Cypripedium tibeticum and margaritaceum in their native habitats, from photographs by Mr. G. Forest, are given in the *Gardeners' Chronicle* for December 18th, as a supplementary illustration. The latter species is not yet in cultivation.

CHONDRORHYNCHA FIMBRIATA.—A plant of this very rare and interesting Orchid has been sent to Kew for determination by Mr. J. Birchenall, Alderley Edge, Cheshire, who remarks that he collected it near Velez. The species was originally described under the name of Stenia fimbriata (Linden & Rchb. f., in *Gard. Chron.*, 1868, p. 1313), but was afterwards transferred to Chondrorhyncha (Rchb. f., *l.c.*, 1879, ii. 648). Reichenbach gave the locality as New Grenada, remarking that it had been collected there by Schlim, Wagener and Blunt. It was introduced by Linden, the description was made, it is believed, through his collector, Wallace. A plant was sold in flower by Linden at Stevens' Rooms, and was purchased by Mr. John Day, who made a drawing in October, 1868 (*Orch. Draw.*, xiv. t. 59, 60). It is well figured in *Saunders' Refugium Botanicum* (ii. t. 107) from plants collected by Blunt for Messrs. Hugh Low & Co. Mr. Day again flowered it in May and October, 1870, but it has almost been lost sight of during recent years.—R.A.R.

ORCHID PORTRAITS.

BRASSOCATLÆLIA LILY BOURDAS.—*Journ. Hort.*, 1909, ii. p. 553, with fig.

CYPRIPEDIUM × BOLTONI.—*Journ. Hort.*, 1909, ii. p. 529, with fig.

CYPRIPEDIUM × LEEANUM CLINKABERRYANUM.—*Gard. Mag.*, 1909, p. 1068, with fig.

CYPRIPEDIUM MARGARITACEUM.—*Gard. Chron.*, 1909, ii. p. 419, with suppl. fig.

CYPRIPEDIUM × MME. ALFRED BLEU.—*Journ. Hort.*, 1909, ii. p. 611, with fig.

CYPRIPEDIUM × THE LION.—*Gard. Mag.*, 1909, p. 979, with fig.

CYPRIPEDIUM TIBETICUM.—*Gard. Chron.*, 1909, ii. p. 419, 420, fig. 185, with suppl. fig.

CYPRIPEDIUM × VEXILLARIUM.—*Journ. Hort.*, 1909, ii. p. 577, with fig.

LÆLIOCATTLEYA NELTHORPE BEAUCLERK.—*Garden*, 1909, ii. p. 616, with suppl. fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

A.C.—The leaf of Lycaste Skinneri is affected with "spot," but we find no trace of fungus. It has evidently been caused by cold drip from the roof. It is of quite recent origin, for the spots had not gone brown when received, and its absence three days previously is significant. The removal from the Odontoglossum to the Cattleya house was correct, but could not remedy the mischief already done.

H. G. A.—1, Catasetum Trulla; 2, Miltonia spectabilis var. radians.

E. F. C.—The flower sent is Cattleya guttata, Lindl., the original type, which is seldom seen in cultivation nowadays.

J. F. S.—Catasetum Gnomus.

E. J. St. D.—The dried flower is a white form of Dendrobium superbum, Rchb. f.

Photographs received, with thanks.—O. O. W., W.B.

The report of the last meeting of the Manchester Orchid Society, with several other matters, is unavoidably held over through pressure on our space.

Correspondents would oblige by writing communications for our Editorial and Publishing departments on separate slips, though they may be enclosed together as before. The growth of the work has necessitated some alterations in our arrangements, which we believe will enhance its utility.

Owing to unavoidable circumstances the publication of the present issue has been delayed.

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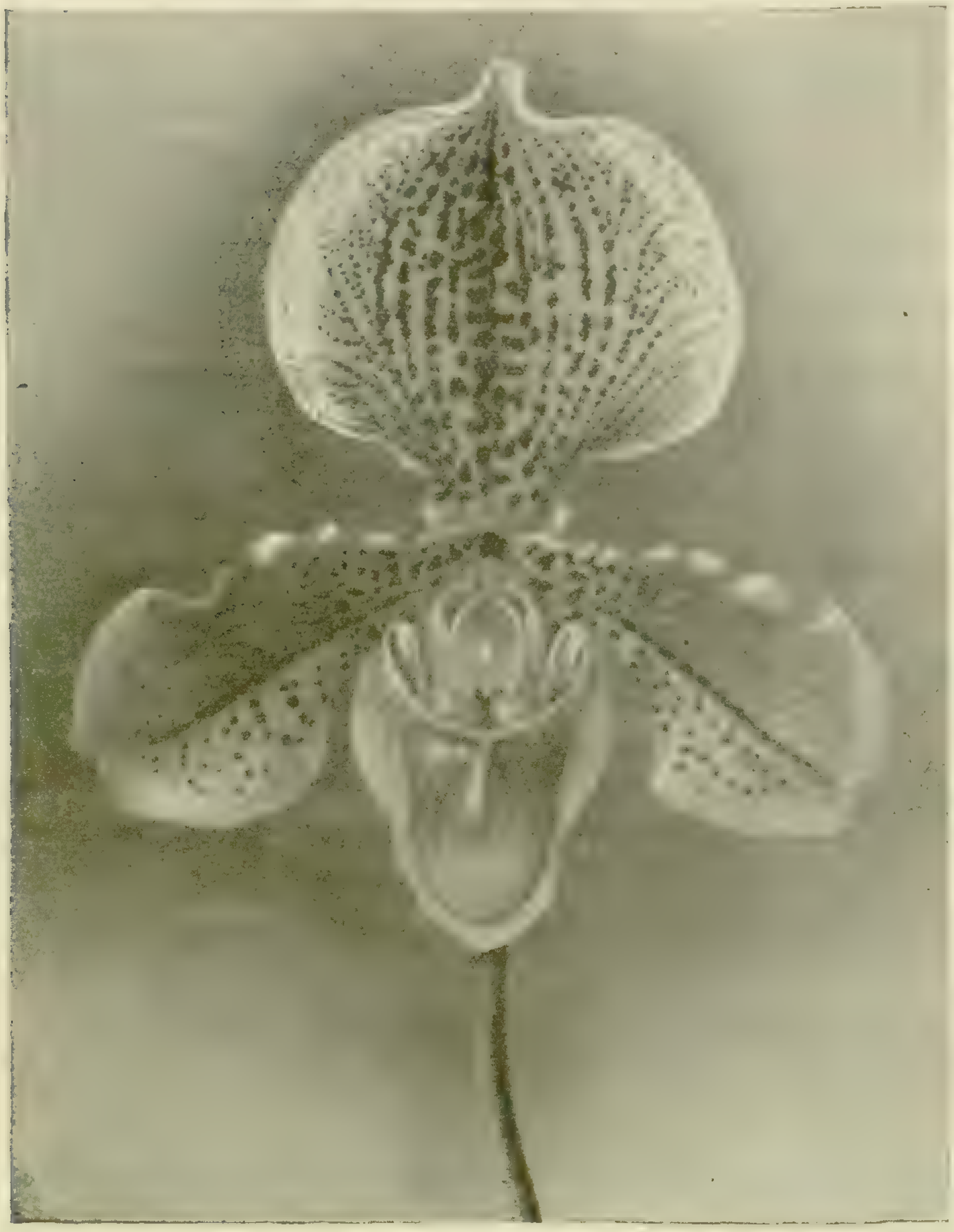

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology

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THE ORCHID REVIEW.

VOL. XVIII.] *FEBRUARY*, 1910. [No. 206.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from vol.* XVII., *page* 356.)

OUR last paper brought us to the large and polymorphic Habenaria group, which is now divided into two subtribes, Gymnadenieæ and Habenarieæ, the former having one, and the latter two distinct stigmas. Gymnadenieæ chiefly differs from Serapieæ in having the glands of the pollinia detached from the surface or end of the rostellum, without any enclosing pouch. In fact the genus Gymnadenia closely resembles Orchis, except for the difference just pointed out.

Platanthera is the largest genus in the group, numbering over 50 species and is very widely diffused through the temperate regions of the northern hemisphere, with a few tropical representatives. This and Gymnadenia are sometimes united with Habenaria, but such an arrangement ignores the great and striking difference seen in the rostellum and stigma, besides making Habenaria into one great chaotic aggregate whose characters cannot be defined with any degree of precision. Herminium is a small European and North Asian genus, bearing spikes of small green flowers, with a very short spur to the lip. Holothrix is exclusively African, and contains some 30 species, in which the petals and lip are invariably longer than the sepals. Other exclusively African genera are Brachycorythis, Schizochilus, Huttonæa and Bartholina. Huttonæa is remarkable for its broadly spathulate, much fringed petals, and Bartholina for its single-flowered scapes and fan-shaped, much-dissected lip. Bartholina pectinata is occasionally seen in cultivation. Arnottia and Bicornella are small Mascarene genera not known in cultivation. Hemipilia is from India and China, and is characterised by its single broad leaf and spikes of purple, Orchis-like flowers. H. amethystina has a beautifully spotted leaf, and is known in cultivation. Two or three other small genera are sometimes recognised as distinct. The species are terrestrial, and approach Orchis and Habenaria in general appearance. The flowers are green, white, purple or rarely yellow.

The fertilisation of various species of Gymnadenia and Platanthera has been studied. Darwin points out that Gymnadenia conopsea resembles a

true Orchis pretty closely, and his son visited a bank where the plant grew plentifully, and caught four species of moths with numerous pollinia attached to their proboscides. The two so-called Butterfly Orchises, Platanthera bifolia and chlorantha, are also fertilised by moths, of which numerous specimens have been captured with the pollinia attached to their heads. Prof. Asa Gray has described the structure of several North American species, and it is evident that the flowers are fertilised in the same way.

The subtribe Habenarieæ differs from Gymnadenieæ in its profound modification of the column. The ordinary concave stigma situated under the rostellum is replaced by two more or less lateral stigmas, which are often extended in front as long clavate processes. The rostellum is three-lobed, the side lobes being extended into elongated channels, in which lie the caudicles of the pollinia. This arrangement is well seen in the remarkable genera Bonatea, to be described presently. The group contains about seven or eight genera, of which Habenaria is by far the largest, as it contains upwards of 400 species. It is found almost throughout the warm and temperate regions of the globe, with the exception of very dry countries, and in these Orchids are invariably rare.

The flowers of Habenaria are very complex in structure, the long side lobes of the rostellum and clavate stigmatic processes giving the column a very unusual appearance. The petals are often divided into two lobes, the upper half helping the dorsal sepal to form a hood over the column, while the lower halves are elongated, and look like an additional pair of lobes to the lip, which itself is often broken up into three narrow lobes, and has an elongated spur at the base. The flowers are generally green or white in colour, but in H. rhodochila the lip is orange-red, and in H. militaris scarlet. In H. carnea the flowers are either pink or white, and the leaves are prettily variegated, the latter character being also seen in H. militaris. These three beautiful species, with a few others, are occasionally seen in cultivation.

Peristylus is a small, mostly Asiatic genus, and is less highly specialised in structure, the small green flowers being borne in dense spikes. Stenoglottis has three African species, and is readily distinguished from Habenaria by its spurless lip and pink flowers, which are not unlike those of an Orchis in appearance, but the two clavate stigmas show that it belongs to this group. S. longifolia is well known in cultivation, and S. fimbriata, which has prettily-spotted leaves, is also sometimes met with. Cynorchis has upwards of thirty species, mostly Mascarene, with one in Natal, but two or three Chinese species have been recently added to the genus. C. purpurascens, C. Lowiana and C. compacta are well known in cultivation. The flowers are mostly purple, but in C. compacta they are

white, and the general resemblance to Habenaria is well known. Diplomeris is a small Asiatic genus, closely allied to Habenaria, in which the anther is so profoundly divided as to have been taken for two distinct anthers.

We may conclude our account of this group by describing briefly the structure of the remarkable genus Bonatea, of which one or two species are occasionally seen in cultivation. It may be compared with a very highly specialised Habenaria, with which genus it is sometimes united. A cursory examination of one of the flowers shows a hood over the column, a pair of lateral sepals, the long cylindrical spur, and a group of nine narrow appendages in front, which are united together at the base, and might at first sight be taken to represent lobes of the lip. An analysis shows that the lip is divided into three narrow lobes, and what appear to be two additional lobes are the elongated front lobes of the divided petals, which are united to the base of the lip. The two long clavate bodies are the two stigmatic lobes, formed by the division of the stigma into two, each being carried forward on a long style, united to the lip at its base. The two remaining organs are the elongated side lobes of the rostellum, and at the tips will be seen the exerted glands of the pollinia, which are connected with the pollen masses by a pair of long slender caudicles, three times their own length, and hidden in narrow channels on the side lobes and connecting with the anther cells situated behind the large cucullate middle lobe of the rostellum.

The flowers are fertilised by butterflies, and Mr. Weale records finding a small butterfly (Pyrgus elmo) perfectly embarassed by the number of pollinia attached to it. The method of fertilisation can easily be imitated by inserting a lead pencil towards the mouth of the spur, precisely as an insect would do on visiting the flower to suck the nectar. The pencil touches the sticky glands, which immediately adhere to it, and on the pencil being withdrawn the caudicles and pollinia are removed, the latter hanging suspended by their own weight. If the pencil be again inserted the suspended pollen masses infallibly come in contact with the clavate stigmas, and some of the packets of pollen adhere to their sticky surfaces, and fertilisation naturally follows. Self-fertilisation is impossible. Darwin pertinently remarks: "I should doubt whether any member of the Orchidean order has been more profoundly modified in its whole structure than Bonatea speciosa."

The subtribe Diseæ is another highly specialised group, and consists of the large and interesting genus Disa, Satyrium, and a few other small genera. It is almost entirely African, with its headquarters at the Cape, the exception being that two or three species of Satyrium, sometimes considered to be forms of one, are found in India and South China. Satyrium coriifolium

and a few other species are occasionally seen in cultivation. They are Orchis-like in habit, with dense-flowered spikes, and the lip is remarkable for being superior, and galeate, with two, often elongated spurs, sometimes reduced to short sacs, at the base, and the sepals and petals are arranged something like a fan beneath. The column is rather complex, and is situated within the mouth of the galeate lip. Over sixty species have been described, and the colour of the flower varies from green to white, yellow, orange, pink and carmine. Practically nothing is known about the fertilisation of the flowers.

In the genus Disa it is the dorsal sepal which is the upper galeate body, the lip being situated beneath, and often very small and narrow. The dorsal sepal is variously spurred behind, this part being sometimes very short, at others much elongated and narrow. The petals are usually situated within the dorsal sepal, and are often very curiously shaped, while the column and appendages are very complex in structure. There are several small genera closely allied to Disa, which are sometimes included in it, as Monadenia, Herschelia, which includes the beautiful "blue Disas," with a fringed lip, or in two cases the limb carried on a much elongated stalk, Schizodium, and Brownleea, and together they aggregate over 100 species the majority being South African, with several others in adjacent regions of tropical Africa, and a few in Madagascar. A few species are well known in cultivation, the most popular being the magnificent Disa grandiflora, the Queen of terrestrial Orchids in the Southern hemisphere, popularly known as "The Pride of Table Mountain," and so much sought after that the Government has had to intervene and restrict the removal of the tubers to reasonable limits. The species of Disa vary much in the size, shape, and colour of the flowers, and very little is known about the insects which fertilise them.

The small subtribe Corycieæ is also chiefly African, but a few species of Disperis are found in tropical Africa, the Mascarene Islands, Ceylon and South India. The group contains four genera and about seventy species. It is characterised by having the lip adnate to the face of the column and extended beyond the widely separated lobes of the anther into a variously-shaped appendage. The anther is usually reflexed, and the stigma bilobed. In short the flowers are very complex in structure. In Disperis the lateral sepals are saccate or spurred behind. The group is rarely represented in cultivation, and practically nothing is known of the fertilisation of the flowers.

This concludes our review of the Ophrydeæ, and our next paper commences the Epidendreæ and the great epiphytic division of the family.

R. A. ROLFE.

(To be continued.)

ORCHIDS OF SAO PAULO, BRAZIL.

WE recently (vol. xvii., p. 298) gave some particulars of the Orchids of Sao Paulo, Brazil, by Dr. F. S. Lane, and now we have a very interesting letter from him, enclosing dried flowers of a yellow form of Oncidium sarcodes and a form of O. pubes. Dr. Lane remarks:—

It is almost impossible to distinguish between O. sarcodes and O. pubes and the intermediate types by the pseudobulbs. They all grow together, and very often we find O. barbatum and others mixed with them. I have occasionally found them near the beach, but the best localities I know of are low hills near the sea shore, although I have found O. sarcodes as high as 850 metres, and 20 leagues from the coast.

You speak in your letter to Mr. Lupton of a possible natural hybrid between C. Leopoldi and C. bicolor. This seems to me impossible. I cannot give you the extreme northern limit of C. Leopoldi, but do not think it is found very much north of Santos, while the southern limit is nearly to Uruguay. I know of C. Leopoldi having been found at the "Lagoa dos Latos," not more than 100 miles from the extreme southern limit of Brazil, while C. bicolor begins to be found at S. Jose dos Campos, near the northern limit of the State, and on north through the State of Rio de Janeiro.

C. Leopoldi rarely occurs more than 100 metres above sea level, and C. bicolor begins at about 700 metres. The finest bicolors come from Bannanal, near the northern boundary of this State, near the State of Rio. How far inland they go I could not say, for there are still immense tracts of virgin forest practically unexplored by the Orchid hunter. I have in my possession a natural hybrid between C. bicolor and C. Harrisoniana, and also one between C. velutina and C. Harrisoniana, both of which I found in the same district. The latter was in a small clump of low bush surrounded by C. velutina, and with several C. Harrisoniana plants, and was in full flower. The former I took for a short C. bicolor. The plant was on a low crooked tree, with no other plants nearer than a kilometre, and the nearest bicolor half a league away. The tree was absolutely isolated and the plant exposed to the full force of the sun.

I have had for the last eight or nine years an average collection of six to eight thousand plants cultivated in the open air, and have on the whole been very successful. I try to find out the natural conditions under which the plants are found, and when possible copy them. Of course this is not always possible. The finest C. intermedia I have ever seen are in a small swamp that does not exceed twenty acres in extent. It lies at sea level between two low hills of a small cape jutting out into the ocean, with the sand bars at each end, just high enough to prevent the sea sweeping through at high tide. One has to wade through mud and water at

times up to the waist and an occasional hole over one's head. The swamp is filled with low, slow-growing, hard wood trees, the tallest not over twenty feet high, and the plants many of them not more than a foot above the ground, with occasionally one at the top of the trees. We were in there fifteen days ago, and the sight was simply gorgeous.

HYBRIDIST.

ODONTOGLOSSUM × HILDA.—An interesting hybrid raised in the collection of John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench), from Odontoglossum × Coradinei Crawshayanum ♀ and O. Pescatorei Mossiæ ♂, and fairly intermediate in character. The ground colour is white, with large purple blotches on all the segments. The sepals and petals are most like those of the seed parent in shape, but rather broader, while the lip is strongly pandurate, but much narrower than in O. Pescatorei. The column wings are broad and slightly denticulate. It flowered for the first time in December last.

LÆLIOCATTLEYA CINNOMAX.—An interesting hybrid, raised in the collection of E. F. Clark, Esq., Chamonix, Teignmouth, from Lælia cinnabarina ♀ and Cattleya maxima ♂. It is most like the former in shape, but has rather more membranous flowers, and a larger, rather more open, crisped lip. Three forms are sent, two having light buff yellow sepals and petals, and a yellow lip, strongly veined with crimson, while the other shows the rosy mauve colour of the Cattleya parent on a light yellow ground, and a little more purple suffusion on the front of the lip. The cross was made in June, 1902, and the seeds sown in May following. The first seedling of the batch flowered in December, 1908, and others are now in bud.

OBITUARY.

SIR CHARLES STRICKLAND.—An enthusiastic Orchidist has passed away in the person of Sir Charles Strickland, Bart., of Hildenley, Malton, who died on the last day of the old year at the age of 90. How long ago Sir Charles began to cultivate Orchids we cannot say, but he had been a gardener from boyhood, and we know that Orchids and bulbous plants were among his chief hobbies. We never had the pleasure of seeing his collection, but from correspondence we should judge it to have been of an old world kind, and we well remember a desire he once expressed for some plants of Epidendrum varicosum, which he wished to cultivate because of their fragrance. He grew a good many of what may be termed old-fashioned plants, and among them numerous Bulbophyllums and Cirrhopetalums, and one of the first-named plants of C. ornatissimum was acquired by him at an auction sale for the price of fourteen guineas. He was successful in growing a number of kinds which are usually accounted difficult, particularly Cattleya citrina,

of which a fine group of some sixty plants is indistinctly shown in the background of a photograph of Crinum Moorei published some years ago (*Gard. Chron.*, 1887, ii. pp. 499, 500, fig. 101). These were suspended at various heights on the glass partition of an Orchid house. In the cultivation of the species of the Cypripedium bellatulum group he was also very successful. Among species described from his collection we may recall Dendrobium Stricklandianum, a Japanese species described by Reichenbach in 1877, and Bulbophyllum Berenicis, three years later. Unfortunately they are still only known to us from description. There were few phases of horticulture in which Sir Charles was not interested, and we have seen some hybrids raised by him, among which we recall the interesting Cypripedium × conco-bellatulum (*O.R.*, iii. p. 187).

The *Gardeners' Chronicle* for January 22nd gives (page 59) an excellent portrait of the deceased gentleman, sitting beneath a fine group of Odontoglossum Rossii, one of his favourite Orchids. It is remarked that "Odontoglossum Rossii, O. Cervantesii, O. citrosmum, and Cattleya citrina all flowered profusely in Sir Charles Strickland's garden, the personal attention given to them by their owner accounting, in a large measure, for the success." It concludes by saying: "The delights of gardening have rarely been demonstrated so clearly as in the case of this gentleman, who derived from his garden one of the greatest pleasures of his long life, which reached ninety years."

PHALÆNOPSIS FROM THE PHILIPPINES.

WE have received from Messrs. McRorie & McLaren, of San Francisco, two photographs showing a fine importation of Phalænopsis as received from the Philippines. The plants are fixed to rafts for facility of transit, and these are packed in suitable crates. One photo shows a large mass of plants and the other a single raft. The plants appear to have travelled very well, and look quite healthy. The photographs were accompanied by the following letter:—

"The accompanying photographs show a large consignment of Phalænopsis Aphrodite (amabilis) which was received by the well-known McRorie McLaren Company of San Francisco, California, who make a speciality of Philippine Orchids, and who guarantee one hundred per cent. of their shipments to Europe, so that European growers can have every plant in good condition when received by them.

"Messrs. McRorie and McLaren have built up a large and flourishing business in Philippine Orchids, and at the present time, 13th of January, they have over 30,000 Phalænopsis and over a thousand Vanda Sanderiana in Manila ready to be shipped to their Nurseries in California.—WM. M. BROWN."

PLEUROTHALLIS CRINIFERA.

A TINY little gem of an Orchid has just flowered in the collection of the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, and proves to be Pleurothallis crinifera, a species described by Rodriguez in 1877 (*Gen. et. Sp. Orch. nov.*, i. p. 16). Mr. Fletcher remarks: "I enclose an inflorescence which I cannot at all recognise, and I have met with no one who can. It has a small creeping rhizome, with leaves closely set together, and the flowers are freely given, and spring close to the rhizome." The leaf sent is nearly orbicular, fleshy, light green, covered with round purple spots, and the short inflorescence bears four flowers, about a third of an inch long, and covered with long whitish hairs outside. The dorsal sepal is oblong, light green, with pale brown dots, and the united lateral sepals are red-purple, with a little green marbling near the margin. The petals are broadly spathulate at the apex, and light green in colour, while the lip is three-lobed, and whitish, with some purple spots. It is a native of the Province of Minas Geraes, Brazil, and was discovered by Barbosa Rodriguez, growing on branches of trees near the Rio Correnteza and Rio des Antas. A figure appears in *Martius Flora Brasiliensis* (iii. pt. 4, p. 504, t. 100, fig. 3). Its appearance in cultivation is interesting, and it should succeed suspended in the Cattleya house.

R. A. R.

POLLEN-PRESERVING TUBES.

WE have pleasure in enclosing a few Smith's Pollen-preserving tubes, some of which contain stored pollen up to eleven months old. We thought you might like to see the pollen, and the condition of it, after so long a storage. We also enclose particulars of crosses made from stored pollen, in which actual seedlings have already germinated, which proves, at least, that fertile seeds are produced by the using of preserved pollen. We hope to have many other germinations from seed produced by stored pollen in the near future. We have never had any difficulty in getting capsules to swell, and produce apparently as much fertile seed as when fresh pollen is used. We hope these early results of our experiment may interest you. We enclose a few tubes for any experiments you may care to make.

A. J. KEELING & SONS.

[The tubes sent contain pollen a year old, which appears quite healthy, and the records show that pollen of P. insigne, Harefield Hall var., and P. × Leeanum giganteum were used when sixty days old, and gave fertile seeds, which are still germinating. The object, of course, is to be able to intercross species which flower at different seasons. The tubes were described at page 29 of our last volume.—ED.]

PAPHIOPEDILUM × BOLTONI.

THE annexed figure represents a very handsome hybrid which received a First-class Certificate from the R.H.S. on November 23rd last, under the name of Cypripedium × Boltoni (*O.R.*, xviii. p. 19). Its origin and history are said to be uncertain, though after an examination of the living plant we incline to the belief that its parents are P. insigne Sanderæ and P. bellatulum album, which would make it a form of P. × Helena. It is, of course, not identical with P. × Helena var. Armstrongiæ, which was obtained from the parentage just mentioned, and was figured at page 105 of

Fig. 3. PAPHIOPEDILUM × BOLTONI.

our 16th volume, but the difference might well be accounted for by variation. The alternative is that it might be a secondary hybrid in which both the above parents were represented, but definite evidence alone can establish this point. The *Gardeners' Chronicle* remarks that it is supposed to have C. insigne Sanderæ for one parent, the other being doubtful, and that in form it somewhat resembles C. × Venus, but is larger and taller. It is, fortunately, possible to compare the two, for P. × Venus was figured at

page 145 of our last volume, and has clearly more of the niveum shape than the one now figured. The foliage has that beautiful mottled character seen in P. × Helena, which is known to have been derived from P. bellatulum, and the flower is wax-like, and of the purest white, with a few very minute purple dots on the lower part of the dorsal sepal. Whatever its origin, it is a very showy thing, and one of the best whites we possess.

The plant has now passed into the collection of H. J. Craven, Esq., The Beeches, Keighley, and received a First-class Certificate and a Silver Medal from the Manchester Orchid Society on December 2nd last.

ORCHIDS FROM FAIRLAWN, PUTNEY.

A NUMBER of beautiful Orchids are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. Odontoglossum × St. Peter is a charming thing, derived from O. × Rolfeæ × amabile, and has cream-coloured flowers tinged with rose, and very densely spotted with chocolate brown, the apex of the lip being white and the crest yellow. Another, derived from O. Vuylstekei × Rolfeæ, is also of excellent shape, and has deep red-brown petals, with a narrow yellowish margin and a few whitish markings at the base and apex, the sepals having a little more yellow at the apex, and two narrow irregular transverse bars, while the lip is white, with much purple blotching round the crest.

A series of hybrid Paphiopedilums illustrates their value as winter-blooming plants. They include the beautiful unspotted P. × aureum virginale; P. × Leonidas album, with a general resemblance to the preceding, but having broader petals and a few spots at the base of the dorsal sepal; a beautifully spotted variety of the same hybrid called Noblesse, P. × Leeanum, Monkeholme var., with a very densely spotted dorsal sepal; a very fine P. × Euryades; the striking P. × Beeckmanii; a large and richly-coloured form of P. × Vacuna (Rothschildianum × villosum); P. × Salomonæ var. Goodsonianum (Spicerianum magnificum × Lathamianum), a very large flower with broad villosum-like petals; the finely-spotted P. × Herbert Goodson, in which much of the character of P. Sanderianum is retained; and P. × Austin Chamberlain (King Edward VII. × Chamberlainianum), most like the latter in shape, but much enlarged, and the dorsal sepal light yellow, with lines of reddish purple spots, which are confluent in the centre, the undulate obtuse petals somewhat suffused and much spotted with red purple, and the front part of the lip suffused with the same colour. P. × King Edward VII. is said to have been derived from P. × nitens × Rothschildianum, but we fail to trace the influence of the latter or of P. villosum in the hybrid mentioned.

All the flowers are splendidly developed, affording evidence of excellent culture.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By W. C. PRICE, Oakdene, West Didsbury.

CYPRIPEDIUMS.—Many of these will now have finished flowering, notably C. insigne, C. × Leeanum, and the hybrids of this group, and any that require potting should be attended to at once, as advised last month. If a plant is in need of fresh compost, I believe in repotting it. Topdressing I have never liked. I think it is very misleading to put a layer of new material on the top, leaving the older compost, which must be partly decayed, underneath, for you cannot see b low the surface, and therefore are guided by it, while the roots may be perishing below, and the plant depending only upon the roots in the new material, which is not at all satisfactory. If repotted you know the condition right to the bottom. C. × Euryades, × Lathamianum, × Calypso, × nitens, × Hindeanum, Boxalli and its hybrids, also C. × aureum and its varieties, Surprise, Œdippe, Cyrus, virginale, magnificum, &c., will be in full flower this month, and many others, too numerous to mention, will make a good show in conjunction with the Dendrobiums.

CYMBIDIUMS.—Cymbidium Tracyanum will now be pushing up its young growths, and any that want repotting should be attended to at once. Use a compost of good loam two-thirds and one-third peat; place two or three clean crocks for drainage, and work the compost between the roots carefully to avoid breaking them; pot firmly, and they will require very little water till well rooted. These plants do not like disturbing, and if a plant has room enough to make its new bulbs comfortably, it is better to leave it as it is, and give it alternate waterings with weak liquid cow manure during the growing season. Do not use larger pots than necessary, as they flower much better when the pots are filled with roots. C. Lowianum, eburneum, and × eburneo-Lowianum are now pushing up their spikes, and will require copious supplies of water till they have finished flowering, when they will rest for a short time. They can then be treated the same as recommended for C. Tracyanum. They should be examined frequently for red spider and small brown scale, which are very partial to Cymbidiums. These can easily be got rid of if taken in time, by sponging the leaves and bulbs with a diluted solution of insecticide. A temperature of 55° to 60° suits them admirably, and a light position, but they do not like it too bright.

MILTONIAS.—Miltonia vexillaria and its varieties Leopoldi and rubens, with M. × Bleuana, will be best in the Intermediate house till the end of April, when they can be moved into the Odontoglossum house. Th require a warmer temperature during the winter months, while they are making their new growths, and the young leaves are not so apt to stick

together and so cripple the young growth. If any young leaf is noticed to stick it should be gently opened, either with the bone handle of a budding knife or a smooth piece of stick. They will now be growing freely and filling the pots with new roots. They should have a little more water now, and the supply should be increased as the days lengthen. Our M. × Bleuana are in flower, and we flower them twice a year, in January or February, and again in August or September.

MILTONIA ROEZLII will thrive best in the warm end of the Cypripedium house. They should never be allowed to get quite dry at the root, and then require plenty of moisture in the atmosphere. They should be carefully watched for red spider, which is the cause of half the failures to grow this beautiful variety.

CATTLEYAS.—Cattleya Trianæ will be at its best this month, and C. Percivaliana will have finished flowering. Any plants that require repotting should be done as soon as new roots commence to push from the base of the last-made bulb. They then root into the new material at once, and suffer no check from the operation. When repotting we fill the pots one-third with clean crocks, using Osmunda fibre alone for compost, and we pot hard. I do not think it is possible to pot a Cattleya too hard when Osmunda fibre alone is used. I notice that several C. Mendelii and Mossiæ are just commencing to show the flower buds at the base of the sheath. They should be very carefully watered, for if too much is given them the buds will turn yellow and drop off. Over-watering is also liable to cause the black rot, which is mostly seen in C. Mendelii, and when once a plant has got it I think the best course is to burn it, for it is very seldom that it recovers.

LÆLIOCATTLEYAS will mostly be resting with the Cattleyas, with the exception of the Lælia cinnabarina hybrids and a few L.-c. bletchleyensis. The cinnabarina hybrids are a beautiful and graceful section, and are in great demand for cut flowers. These should have sufficient water at the root till the flowering period is past, otherwise they require the same treatment as Cattleyas.

SEEDLINGS.—Cattleya and Læliocattleya seedlings should be kept growing till they reach the flowering size. Where there is no house for the sole purpose of raising seedlings, they should be kept in a warmer temperature than the parents, say 68° to 75°, and any requiring repotting should be done as soon as noticed, no matter what the time of year. The great secret is to keep them going. Do not let them suffer a check in any way, but keep a moist growing atmosphere, for if once they stop it is a hard matter to get them going again. Use Osmunda fibre for potting, cut up according to the size of the pots to be used.

VANDAS.—Vanda teres will be resting at the warm end of the Cattleya

house. They should have no water till March, when they can be repotted and placed in the stove, where they can have full sunlight, abundance of moisture, and be kept well syringed overhead. They cannot be grown too hot or have too much sun. When potting, place one crock at the bottom of the pot, and place four stems in a 4½ inch pot, also one stick to tie them to, and fill up with sphagnum moss pressed in moderately firmly. If any are too tall cut them off at the required length, leaving the butt ends in the pot, and place with the others, where they will soon make new shoots and substantially increase the stock.

VANDA CŒRULEA thrives best in the Intermediate house, and until root action commences should only have enough water to keep them from shrivelling. This is easily detected by the ends of the roots turning green as they commence to grow. V. tricolor and V. suavis require a warmer house. I find that they do well at the end of the Cypripedium house where they can have a corner to themselves. As soon as root action commences they should be repotted in a compost of two-thirds fresh sphagnum moss and one-third peat or Osmunda fibre. Pot moderately firmly. If the pot that the plant is in is large enough, carefully pick out all the old compost with a pointed stick without disturbing the roots, and refill with new material.

The best lot of Vandas I ever saw were grown in an old lean-to stove facing north. They were placed together at one end, the rest of the house being filled with Anthuriums and ferns, and a temperature was kept ranging from 58° to 65° in winter and 65° to 75° in summer. I saw the same plants again about eight years afterwards. The house had been re-roofed three years before, the same man was growing them, and the same method of cultivation employed, but they simply would not thrive. Why, I do not know. The Anthuriums and ferns were growing as well as ever, but the Vandas were only lingering. I think if I had been growing them I should have kept moving them till I found a place where they would succeed.

LYCASTES.—Lycaste Skinneri alba and other varieties are in full flower in the Intermediate house, also L. × Tunstillii, L. × Mary Gratrix, and L. × Rogersoni. The supply of water should be slightly increased till they pass out of bloom, when it must be reduced till signs of activity are apparent.

DENDROBIUMS.—Dendrobiums are now pushing their buds in profusion, and many are in flower. Keep moving the most forward from the resting quarters into a little more heat. Do not tie the bulbs too close together, but allow plenty of space for the flowers to develop properly. What a beautiful sight it is to see a good batch of well-grown and well flowered Dendrobes! I often wonder why they are not more extensively grown, for they deserve to be. D. Wardianum is still the most striking

and showy species we have, and if let flower in the Intermediate house will last much longer in bloom than if put into a warmer house. D. aureum, D. nobile, D. × Ainsworthii, and other hybrids and species will be in full flower towards the end of the month. Do not hasten them in any way till the flowers are off.

LÆLIA ANCEPS.—This beautiful and useful species of Lælia will now have finished flowering, and should only have enough water to prevent them from shrivelling. If well rooted they will almost go entirely without water till new growth commences. They should be placed in a light position near the glass in the Cattleya house or suspended from the roof.

CALANTHES of the deciduous section will now have passed their flowering period, and should be kept quite dry till they commence to make new growths. If possible they should be placed upon a shelf at the warm end of the Cattleya house, or upon the stage, where they can be kept dry and have full light. I have noticed that it is a frequent cause of spot to store them in too cool a temperature, and also where they do not get enough light. They require just as much light when resting as they do when growing. Some gardeners are very apt to think that as there are no leaves on the plants they can set them in any odd corner out of the way, and strange places some are put in, under geraniums, and sometimes under Cypripediums, and yet they wonder why they get spot.

ONCIDIUMS.—Oncidiums of the varicosum section, with O. concolor, Forbesii and crispum, thrive when grown in a cool shady moist house. Any that have finished flowering should be kept slightly drier at the roots, but not allowed to get quite dry. When they push new roots any that require it may be repotted. For repotting use pans that will just hold the plants comfortably, as they do not like too much pot room. Pot moderately firmly, using a compost of polypodium fibre and sphagnum, half of each, as advised last month for Odontoglossums. Osmunda fibre may also be used alone. They grow best when suspended from the roof and kept in a temperature of 50° to 55°, allowing a rise to 60° as the season advances. Keep a sharp watch for thrip, as these insects will spoil the appearance of a plant in a few hours.

ODONTOGLOSSUMS.—O. grande and O. Insleayi leopardinum are now at rest in the warm end of the Odontoglossum house, and will require little or no water till new growth commences. Unless these have a good rest they will not repay you by flowering. There are plenty of O. crispum and O. × excellens now in bloom, also several varieties of O. × Adrianæ, while Sophronitis grandiflora, with its bright scarlet flowers, looks charming in contrast to the Odontoglossums, and requires the same treatment at this time of year.

COOL HOUSE.—There is not much to be done in this house except

keeping the plants clean, and tying up spikes, but a few may require potting, and can be done as advised last month. Keep a sharp watch for thrip, and fumigate with XL All compound at the first appearance of this pest. During mild weather the top ventilators may be opened a little during the warmest part of the day, on the opposite side of the house to which the wind is blowing, as well as the bottom ventilators. Damping down of the houses may now be done twice a day, in the morning and again about two o'clock in the afternoon, and the floors again about five o'clock. On bright days the plants may be sprayed overhead lightly two or three times a day; on a dull day once will suffice.

TEMPERATURES will be higher this month owing to the lengthening of the days, and increase of the sun's power, but the figures given last month will be suitable for this month when artificial heat has to be used. Be careful not to have too much fire in the morning, in case the day is sunny. It is a waste of fuel, and the houses get too hot, which does a great deal of harm.

SHADING.—The time of year is approaching when we should expect to have the blinds in use. These should be got in order so that they can be used at any time. The days are lengthening and the sun increasing in strength, and upon a bright day the blinds will be wanted if only for an hour, especially after a period of very dull weather.

A WONDERFUL GROUP OF CYPRIPEDIUMS.—Under this title appears the following note by Mr. H. J. Chapman in the *Gardeners' Magazine* for December 25th (p. 1006): "I have on many occasions referred to the value of winter-flowering Cypripediums for cultivation in the neighbourhood of large towns and in smoky manufacturing districts, but I never felt this claim to be so great as I did at the Manchester and North of England Society's meeting held in the Corn Exchange on December 16th. Some dozen or more groups of Orchids were exhibited from amateurs who do not employ a gardener, as well as from prominent growers, such as Mr. O. O. Wrigley, of Bury, who had some hundreds of flowers displayed in a tastefully-arranged group. But it was to the remarkable group of Cypripediums from the collection of Samuel Gratrix, Esq., of Whalley Range, Manchester (gr. Mr. Shill), that my attention was particularly directed. In all my experience I have never seen such a quantity of remarkably choice kinds displayed together, and the Society's Gold Medal was never more deservedly given than on that occasion." He then proceeds to enumerate some of the principal kinds, concluding: "The whole of the plants were well grown, and the flowers fine in substance, reflecting the greatest credit upon Mr. Shill's ability in producing, even under such unfavourable atmospheric conditions, flowers of such quality that they were the envy of all."

BRASSOCATTLEYA CLIFTONI VAR. MAGNIFICA.

THE superb hybrid here figured, Brassocattleya Cliftoni var. magnifica, was raised by Messrs. Charlesworth & Co., Haywards Heath, from Brassocattleya Veitchii × Cattleya Trianæ, Uplands var., and was exhibited by them at a meeting of the R.H.S. held on March 9th, 1909, when it received a First-class Certificate (*O.R.*, xvii. p. 116). The flower is very large and of excellent shape, as may be seen by the illustration, which is reproduced from a photograph kindly forwarded by Messrs. Charlesworth, and the colour of

Fig. 4. BRASSOCATTLEYA CLIFTONI VAR. MAGNIFICA.

the sepals and petals has been described as silvery white, tinged with rose. and the broad, well-fringed lip ruby-crimson in front. It afterwards passed into the collection of J. Talbot Clifton, Esq., Lytham Hall, Lancashire The typical form was exhibited by Messrs. Charlesworth on December 8th, 1908, and also received a First-class Certificate. An analysis shows that it is made up of half Cattleya Trianæ and one quarter each C. Mossiæ and Brassavola Digbyana. It is one of the finest of recent acquisitions.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting of the New Year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 11th, and brought together a fine display of Orchids, the awards consisting of eight medals, one First-class Certificate, two Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group of Odontoglossums, including O. × Wiganianum Goodson's var., some fine forms of O. × amabile, O. × loochristiense, a distinct and handsome O. × Lambeauianum, having the flowers profusely dotted with purple, O. × eximium Goodson's var., and others, with some handsome forms of white and blotched O. crispum, the latter including O. c. Edwardii and O. c. Princess.

E. Rogerson, Esq., West Didsbury, Manchester (gr. Mr. Price), received a Silver Banksian Medal for an excellent group of Cypripediums, including some good forms of C. × Troilus and C. × Œdippe, C. × Ceres Fascinator, C. × Zeus, C. × Leeanum Clinkaberryanum, C. insigne albidum, C. × Rogersonianum, a pretty hybrid of C. × Chamberlainianum C. × memoria Lord Burton (Sallieri Hyeanum × Lathamianum) and others.

F. Monteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), received a First-class Certificate for Lycaste Skinneri armeniaca, which was shown in very fine condition. The flowers are white with an apricot yellow suffusion on the petals and lip.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Cypripedium × Bantam (× Sallieri Hyeanum × Euryades), a very handsome hybrid, having the lower part of the dorsal sepal deep shiny chocolate-purple and the upper part white, with the petals and lip yellow tinged with red-brown. A similar award was given to C. × Atlas (Fascinator × insigne Harefield Hall var.), a very fine thing, with the base of the dorsal sepal Indian yellow, and the centre regularly spotted with dark purple, while the lip and petals are yellow tinged with purple, the latter having an undulate upper margin and numerous dark spots.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), received a Cultural Commendation for a pan of Habenaria Ugandæ with three fine spikes.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a small group of choice Orchids, including a fine plant of Masdevallia Schrœderiana with about 25 flowers, Dendrobium Johannis with seven spikes, the very pretty Liparis rhodochila, having bright green flowers with

a red lip, Sophrocatlælia Mary (S. grandiflora × L.-c. Helena), with a pretty magenta-rose flower, Læliocattleya Eleanor (L. anceps × L.-c. Charlesworthii), most like the former parent in general character but showing some of the influence of the latter in the lip. He also sent cut spikes of some good forms of Lælia anceps.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed Cypripedium × hirsuto-Leeanum, C. × Haroldianum (hirsutissimum × insigne Harefield Hall var.) and C. × Chapmaniæ (Fairrieanum × Calypso), a pretty ivory white flower, with a green suffusion on the dorsal sepal, and some purple reticulated lines.

John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench), showed flowers of Odontoglossum × Hilda (Coradinei Crawshayanum × Pescatorei Mossiæ), an interesting flower which is noted on page 38.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium × Leeanum His Majesty, having a large white dorsal sepal with numerous rows of confluent purple dots, and C. Wellesleyæ (Venus × insigne Harefield Hall var.), a fine cream white flower, tinged with rose and dotted with purple on the dorsal sepal and petals, the lip pale yellow, slightly tinged with purple, and the staminode pale yellow.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, to which a Silver Flora Medal was given. The hybrid Calanthes formed a prominent feature, and included some beautiful white and rosy forms with purple blotches in the throat, while the chaste C. × Veitchii alba was shown in fine condition. White and coloured forms of Lælia anceps were also good, other noteworthy things being the brilliant scarlet Odontioda keighleyensis, and some good Cypripediums and Odontoglossums, the former including C. × Minos Youngii and C. × Priam Charlesworth's var., a handsome hybrid from C. insigne Harefield Hall var. and C. × Niobe, and the latter a fine O. Edwardii with three spikes, and some good seedlings of O. crispum and O. × armainvillierense.

Messrs. James Veitch & Sons, Chelsea, also received a Silver Flora Medal for a fine group, including Brassocattleya Pyrrha and B.-c. Orpheus, Odontoglossum crispum, and a lot of good hybrid Cypripedes. Among the latter were two forms of C. × Little Gem, having the lower sepal coloured much as in the dorsal, a fine series of C. × Actæus, the varieties langleyense and Sybil being very good, also a series of hybrids from C. villosum and C. × Euryades, showing a remarkable diversity of colouring, some having the dorsal sepal handsomely spotted, and others much suffused with purple at the base and white at the apex.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group of Cypripediums, including some good C. × Niobe, C. × Charlesianum Cypher's var., C. × Alcibiades, C. × Fascinator, C. ×

Mrs. Wm. Mostyn, C. × Leopoldianum, C. × G. F. Moore, C. × Amy Moore, and other attractive hybrids.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a choice group, including some good Cattleya × Trianæ, the variety A. J. Balfour having white sepals and petals and the front lobe of the lip crimson, Læliocattleya Charlesworthii, Cymbidium × Wiganianum, Odontoglossum × venustulum, var. Apollo, Cypripedium × aureum Surprise, C. × Minos Youngii, and C. × Ville de Paris.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a showy group, including Lælia anceps Chamberlainiana, Brassocattleya Pocohontas, Epidendrum Cooperianum with three fine spikes, the singular Bulbophyllum lemniscatoides, Grobya galeata, Oncidium varicosum concolor, Cirrhopetalum Medusæ, Dendrobium triflorum with nine flower spikes, the beautiful Cypripedium × Helen II. var. Armstrongiæ (figured at p. 105 of our sixteenth volume), C. × Alcibiades magnificum, C. × Curtmanii magnificum and others.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group, including the striking Odontoglossum × Groganianum, Cypripedium Minos Youngii, C. × nitens G. S. Ball, C. × aureum Hyeanum, and others, with a dozen plants of a very fine C. insigne having large chocolate blotches on the dorsal sepal, and the apex pure white.

Messrs. Sander & Sons, St. Albans, exhibited a striking Phaius allied to P. callosus, but differing in having a long slender spur. It has been named P. Cooperi. The flowers are large, and the sepals and petals red brown in front and yellow behind, while the lip is white at first, changing to yellow, with two red-brown blotches at the sides. It received a Botanical Certificate.

Messrs. William Bull & Son, Chelsea, sent Cypripedium × Hobartii magnificum (Lathamianum × insigne Harefield Hall var.), and Odontoglossum crispum Flora, a finely blotched seedling.

M. Mertens, Ghent, showed Miltonia vexillaria Leopoldi, Cypripedium × Lathamianum Imperator, C. × Germain Opoix Westfield var., and several others.

Messrs. Stanley & Co., Southgate, showed Cypripedium × Leeanum punctatissimum, a beautiful spotted form, and C. × Gisela von Bulow (Euryades × Beeckmanii), a handsome flower, having a white dorsal sepal blotched with purple, and the petals and lip showing much of the Beeckmanii character.

Mr. H. A. Tracy, Twickenham, sent Cypripedium × Phillipsii, a yellow flowered hybrid with chocolate markings.

At the meeting held on January 25th there was a fine display of Orchids, and the awards consisted of eight medals, one First-class Certificate, and three Awards of Merit.

J. Foster Alcock, Esq., Exhims, Northchurch (gr. Mr. Coe), staged a group of 47 excellent Cypripediums, for which a Silver Flora Medal was given. Noteworthy among them were the handsome hybrids C. × Gaston Bultel, × Earl of Tankerville, × Æson giganteum, × Minos Youngii, × A. Dimmock, × nobile, × Beeckmanii, × St. Alban, and some fine forms of C. × aureum, × Leeanum, &c.

E. Rogerson, Esq., West Didsbury, Manchester (gr. Mr. Price), also received a Silver Flora Medal for a group of choice Cypripediums, shown in excellent condition, and including the rare C. venustum Measuresianum, × Olga Bagshawe, × chrysotoxum, × Hindeanum, × Boadicea Rogersoni, a fine dark form, × Hobartii magnificum, × Euryades Mrs. E. Rogerson, × Euryades Price's var., well marked with red purple on the dorsal sepal, some fine forms of C. × Lathamianum and × aureum, the latter including the varieties Surprise, Œdippe, and Mrs. E. Rogerson.

J. H. Bromilow, Esq., Rann Lea, Rainhill, Lancs. (gr. Mr. Morgan), sent the rare albino Cypripedium Charlesworthii Bromilowianum, a good form of C. × Alcibiades, and C. × Actæus Gratrixiæ. An Award of Merit was given to Cypripedium × Lord Wolmer (Leeanum Clinkaberryanum × Euryades), a very handsome hybrid, having a large flat white dorsal sepal, with very small purple spots in the middle, and some larger spots at the base, and the petals and lip tinged with brownish purple.

Lt.-Col. G. L. Holford, C.I.E., C.V.O.. Westonbirt, Tetbury (gr. Mr. Alexander), sent Cypripedium Helen II., Holford's var., a fine cream white flower, with many purple spots on the dorsal sepal and some smaller spots on the petals. An Award of Merit was given to Cattleya × Miranda Westonbirt var. (Trianæ × amethystoglossa), a pretty rosy variety, having an irregular band of dark rose on the petals, some minute dots on the sepals, and a bright carmine lip, with the front lobe crimson, and some lemon yellow on the disc.

R. Brooman White, Esq., Arddarroch, Garelochhead, sent flowers of two seedling Cypripedium insigne Sanderæ, resembling the parent except for a little variation in the amount of spotting on the dorsal sepal.

Eustace F. Clark, Esq., Teignmouth, sent a flower of Cypripedium × Rappartii of good shape, and two flowers of C. × Stanis.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Odontoglossum × percultum Roland, heavily blotched with claret purple, and Odontioda Bradshawiæ, Cookson's var., which was figured at page 113 of our last volume, now bearing a magnificent spike of ten flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a small

group of choice things, including Odontoglossum crispum Lily Bourdas and Mrs. E. Rogerson, two handsomely blotched forms, O. × Wiganianum, Goodson's var., O. × St. Peter (Rolfeæ × amabile), a distinct and pretty form, having the flowers tinged with rose and densely spotted with purple, also a good dark hybrid derived from O. × Vuylstekei and O. × Rolfeæ.

T. R. E. Olver, Esq., Plymouth, sent flowers of Cypripedium × Eismannianum.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), sent a good dark variety of the handsome Odontioda Charlesworthii.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium Wellesleyæ (Venus × insigne Harefield Hall var.), a large cream white flower, with some purple spotting on the dorsal sepal and petals.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, to which a Silver Flora Medal was awarded. It contained a beautiful series of white Lælia anceps in the centre, some fine Odontoglossum × armainvillierense, O. × Eleanor, O. × Phœbe, some well-blotched seedlings of O. crispum, O. coronarium miniatum, a series of Læliocattleyas, the rare Eriopsis rutidobulbon with two spikes, Angræcum arcuatum, Ornithidium Sophronitis with many scarlet flowers, and a number of the bright yellow Oncidium cheirophorum with the scarlet Sophronitis grandiflora in front. A First-class Certificate was given to Anguloa Cliftoni, a remarkable species from Colombia, having lemon yellow, pointed sepals and petals, with some dark claret colour at the base of the latter, the lip tinged with cinnamon colour, and the column white, spotted with purple at the base.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a fine group, including some excellent varieties of Lælia anceps and Cattleya Trianæ, one called var. Colonel Carlisle being clear white, with lemon yellow disc, and a bright purple spot on the front lobe of the lip, Vanda Watsoni, Catasetum Gnomus, some good Odontoglossum × armainvillierense, the reddish violet O. × Groganianum, a fine O. × harvengtense, Cypripedium × Maudiæ delicatum, C. × Beeckmanii, a pretty form of Odontioda chelseiensis, and other good things. An Award of Merit was given to Cattleya Trianæ Magali Sander, having delicate whitish pink flowers, with a yellow disc and the front lobe of the lip bright mauve-crimson.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a group, containing a fine series of Lælia anceps varieties, white and coloured, a lot of good Calanthes, Odontoglossum × Fascinator and others, a richly-coloured Læliocattleya callistoglossa, a fine example of Pleurothallis Roezlii, some good Cypripedium × aureum, a very dark C. Fairrieanum, C. × Leopoldianum, C. × Beeckmanii, C. × Mrs. Wm. Mostyn, C. × Mr. F. Sander, C. × Clio, Chardwar var., &c.

Mr. E. V. Low, Haywards Heath, received a Silver Banksian Medal

for a choice group, including Odontioda Thwaitesii, Cymbidium longifolium, Cypripedium × aureum Surprise, C. × Mrs. Tautz, C. × Thompsoni magnificum, C. × Tracyanum, some good C. × Euryades, &c.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including some fine Cattleya Trianæ, Epidendrum Cooperianum, Masdevallia cucullata, Bulbophyllum sicyobulbon, B. Dayanum, Cypripedium × aureum virginale, with seven flowers, C. × Leeanum Clinkaberryanum, a form of C. concolor having the flowers tinged with purple, the rare yellow-flowered Sophronitis grandiflora Lowii, and some Dendrochilum glumaceum in front.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group of finely developed Lælia anceps, and various good Odontoglossums, with a lot of the brilliant Epiphronitis Veitchii in front.

Mr. A. W. Jensen, Lindfield, sent Odontoglossum crispum Irene, a pretty rosy form.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a small group of hybrid Odontoglossums.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting was held at the Coal Exchange, Manchester, on December 19th, 1909, when there was a very fine show of plants, the Committee present being :—Messrs. E. Ashworth, R. Ashworth, Thorp, Cowan, Ward, Arthur, Shill, Keeling, Holmes, Cypher, Parker, and Weathers (Hon. Sec.).

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent a magnificent group of Cypripediums, all well grown and showing the flowers to great perfection, gaining the Society's Gold Medal. Every plant was of high quality, but only a few can be selected to show the nature of the exhibit. The group included C. × Beryl, West Point var., C. × Troilus eboriacum, C. × T. West Point var., C. × Lion, C. × alportense, C. × Germain Opoix, C. villosum Mrs. Cary Batten, C. × San-ac-deræ, C. × Priam, C. × Actæus Miss Cann, C. × Thalia, West Point var., C. × T. Mrs. F. Wellesley, C. × T. giganteum, C. × Lady Ursula, C. × F. Sander, C. insigne var. Bohnhoffianum, and many others of equal merit. C. × eboriacum, West Point var. gained a First-class Certificate.

Mrs. Gratrix received a First-class Certificate for C. Actæus var. A. J. Balfour, a flower of nice proportions, with a large concave dorsal sepal, irregularly spotted with brown, and the upper portion clear white.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), staged a group of plants showing a high degree of culture, three fine specimens standing out conspicuously, viz., Cypripedium insigne Sanderæ, carrying 22 flowers, C. i. punctatum violaceum, with 22, and C. × Leeanum Clinkaberryanum, with 17, each of them gaining the Society's Cultural

Certificate. Odontoglossum × ardentissimum var. Phœbe, O. crispum var. Clive, and O. c. Chapmanii each received a First-class Certificate, the last-named being a flower of good size and shape, heavily blotched with reddish brown, and delicately margined and lined with white. Awards of Merit were given to Calanthe × Goldeni, C. × Harrisii, and Cypripedium × Hera, Oakwood var. The group included also C. insigne Harefield Hall var., C. × Leeanum giganteum, and various forms of C. × Actæus (Silver-gilt Medal).

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), again sent a very fine mixed group, including at the back some well-flowered Oncidium tigrinum, Odontoglossum crispum, various hybrids, Angræcum sesquipedale, &c. Brassocattleya × Thorntoni, a pure white flower with a small reddish brown blotch on the front of the lip, received a First-class Certificate. Læliocattleya × Enid-Harold was a flower of large size and good shape, with rich rosy-purple sepals and petals, and a darker tinted lip. Several plants gained First and Second class Botanical Certificates. The group was divided for competition purposes, and gained a Silver-gilt Medal and a Silver Medal for Cattleyas, Lælias, &c.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a specially fine group of Cypripediums, which included all the better types of C. insigne, C. × Leeanum, &c. I noted C. i. Gladys, one of the best of yellows, C. i. Laura Kimball, C. i. aureum var. Marion, C. × Madame Jules Hye, very fine, C. × Marjorie, C. × W. Hopkins, the unique C. × Euryades incomparabile, the fine C. × nitens Wrigleyanum, C. × Veronica, and others in great variety. All were well-grown, and the group gained a special Vote of Thanks.

Charles Parker, Esq., Ashton-on-Ribble, staged a fine group of Cypripediums, including C. insigne, × Leeanum, × aureum, and × nitens in great variety (Silver-gilt Medal). Well-flowered plants of C. insigne Sanderæ, C. i. Harefield Hall var., and C. × Leeanum giganteum each gained a Cultural Certificate.

Z. A. Ward, Esq., Cringlewood, Northenden (gr. Mr. Weatherby), staged a fine group of Odontoglossums, Oncidium tigrinum, Calanthe × Veitchii, well flowered, Cypripedium × Nogi, C. × aureum Ward's var. &c. The whole group was very tastefully set up, and gained a Silver-gilt Medal.

R. le Doux, Esq., West Derby (gr. Mr. Fletcher), sent a small group of choice Cypripediums, including Cypripedium × Leeanum Corona, C. × Madame Jules Hye, C. × triumphans, &c., backed with the pretty Calanthe × Veitchii, &c. (Silver Medal). Odontoglossum × Miss Lawrence Hignett, O. × amabile Mrs. Florence Boundy, and Cypripedium × eboriacum le Doux's var. each gained an Award of Merit.

R. Ashworth, Esq., Ashlands, Newchurch, gained a Silver Medal for a group, and an Award of Merit for Odontoglossum crispum Marjorie.

G. S. Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), staged a group of choice Cypripediums, which gained a Silver Medal. Lycaste costata received a First-class Botanical Certificate.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a specially fine group of Lycastes, which included many choice varieties of L. Skinneri, many of which had upwards of a dozen flowers per bulb. The Committee awarded these a Cultural Certificate. The group included a specially fine Cypripedium × Leeanum Lavertonianum (Special Vote of Thanks).

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a fine group of Odontoglossums, which gained a Silver Medal.

W. Thompson, Esq., Walton Grange (gr. Mr. Stevens), gained Awards of Merit for Cypripediums × Our King (insigne Harefield Hall var. × Niobe), C. × Golden Gem (Leeanum giganteum × callosum Sanderæ), C. × Golden Gem var. Ætnæ, and C. × Princess Victoria (aureum virginale × Actæus langleyense).

Mrs. Wood, Moorside, Glossop (gr. Mr. Gould), received an Award of Merit for Cypripedium × Mrs. S. Wood (Queen of Italy × concolor Sanderæ).

J. J. Holden, Esq., Southport (gr. Mr. Johnson), gained an Award of Merit for Cypripedium × Normanii (Sallieri × Beeckmanii).

Samuel Gratrix, Esq., Whalley Range (gr. Mr. Shill), received First-class Certificates for a specially fine Cypripedium × Mary Gratrix, and C. × Lord Ossulston, West Point var., carrying twin flowers.

Rev. J. Crombleholme, Clayton-le-Moors, sent a variety of Cypripedium × Lord Ossulston, which gained an Award of Merit.

Messrs. Cypher & Sons, Cheltenham, staged a good group of choice Cypripediums, which gained a Silver Medal. The best varieties of C. insigne, C. × Leeanum and C. × aureum were well represented.

R. le Doux, Esq., West Derby (gr. Mr. Fletcher), gained Awards of Merit for Odontoglossum × Mrs. R. le Doux and O. × Mrs. Hattie Barcise.

Messrs. Keeling & Sons, Westgate Hill, Bradford, gained an Award of Merit for Cypripedium × Princess Victoria.

Votes of thanks were awarded to Messrs. J. Birchenall, W. Bolton, W. Shackleton, H. Arthur, and a Bronze Medal to Charles Parker, Esq. for small groups.

A good muster of Exhibitors helped to make a good show at the meeting held on January 20th, when the Committee sat as follows: Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Arthur, Shill, Warburton, Keeling, Holmes, Cypher, Parker and Weathers (Hon. Sec.).

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), again staged a fine group of miscellaneous plants, covering one side of the centre stage. A fine Odontoglossum × eximium received a First-class Certificate, and Cattleya × Fyldense (Mendelii × Hardyana) an Award of Merit. The same award went to Dendrobium Wattii, a long spurred flower, white, with rich orange crimson throat. The group was rich in botanical species, the best being Saccolabium bellinum, Cirrhopetalum Makoyanum, and Maxillaria Turneri (Silver-gilt and Silver Medals).

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent a well grown lot, which included Odontioda heatonensis, O. Bohnhoffiæ, the distinct

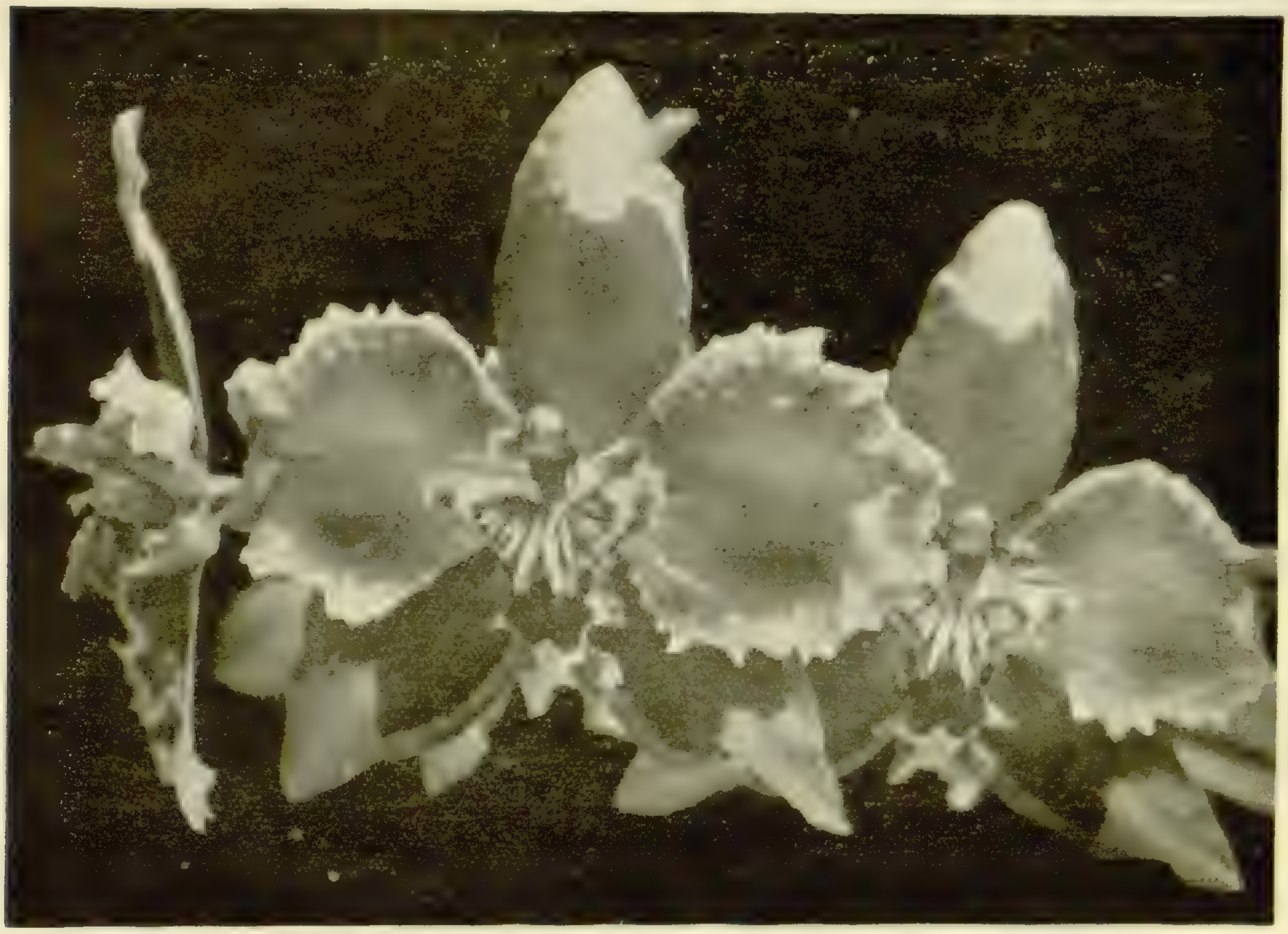

Fig. 5, ODONTIODA BRADSHAWIÆ, COOKSON'S VAR.

Odontoglossum × spectabile album, a fine plant of O. pulchellum majus, Oncidium macranthum, &c. (Silver Medal).

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), sent the beautiful Odontioda Bradshawiæ Cookson's var. This has grown much stronger since last year, and was exhibited in fine form, with a compact spike of 12 flowers The ground colour is of rich crimson, with a delicate margin of faint purple edging the sepals and petals, the lip being slightly darker crimson, abruptly reflexed and tipped with white, and the strongly-toothed crest bright yellow. It received a First-class Certificate and Silver-gilt Medal (see fig. 5). A fine Cypripedium × Venus, Oakwood var., gained a First-class

Certificate, being larger than most and much more densely spotted. C. × Alcides var. Harold and C. × Zampa var. hirsuto-Lee both gained Awards of Merit.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Corser), gained a First-class Certificate for the fine hybrid Cypripedium × Curtmanii (Mons. de Curte × Beeckmanii), and Awards of Merit for C. × Actæus W. R. Lee's var., C. × A. var. Sylvia and C. × Priam Sedeni. Many other fine Cypripediums were included in the group, which gained a Silver Medal.

Samuel Gratrix, Esq., Whalley Range (gr. Mr. Shill), gained a First-class Certificate for a handsome Cypripedium × Marquis of Lansdowne (Thompsonii × aureum Œdippe). The plant was only in a 3-inch pot, and is likely to develop into a very fine thing. The aureum influence has caused the flower to lose much of the gloss of Thompsonii, but the dorsal sepal is rounder and flatter and the colour deeper, the brown being more evenly diffused on the petals.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), showed a group of Cattleyas, Lælias, &c. (Silver Medal). C. Trianæ var. W. Holmes, and Cypripedium × Mrs. J. McCartney both gained Awards of Merit.

J. H. Bromilow, Esq., Ranr. Lea, Rainhill (gr. Mr. Morgan), gained a Silver Medal for a choice group of Cypripediums, in which I noted C. aureum Pomone, C. × Euryades New Hall Hey var., and C. × Boadicea magnificum. C. × Ruby (Baron Schröder × Leeanum Clinkaberryanum) gained an Award of Merit.

Norman Galloway, Esq., Great Horton, Bradford, staged a group of Cypripediums containing many varieties of well-known forms, which gained a Silver Medal.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), received an Award of Merit for Odontoglossum × Dr. F. W. Walker.

R. le Doux, Esq., West Derby (gr. Mr. Fletcher), sent Odontoglossum crispum Mrs. Hutting, which gained an Award of Merit.

W. J. Hargreaves, Esq., Harbourne Villas, Burnley, sent Cypripedium × Euryades var. Florence Hargreaves, which received an Award of Merit.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a hybrid Cypripedium from C. × Lathamianum × niveum, which showed very little trace of the latter.

Messrs. Muirhead & Wilcox, Ashton-on-Mersey, sent a good group of Cypripediums, which included many fine varieties of C. × aureum, C. insigne, &c. (Special Vote of Thanks). C. × Miss Mason, of unrecorded parentage, gained an Award of Merit.

Mr. W. Shackleton, Great Horton, Bradford, gained an Award of Merit for Cypripedium insigne Highfield var.

Messrs. Cypher, Cheltenham, received a Silver Medal for a good group

of Cypripediums, the same award going to Messrs. Keeling, Bradford, for a miscellaneous group.

Ed. Rogerson, Esq., Oakdene, West Didsbury (gr. Mr. Price), sent a small group, which included Cypripedium × aureum Surprise, Odontoglossum crispum Chesters Rogerson in fine form, O. c. Empress Alexandra, and O. c. xanthotes.

Mr. J. Robson, Altrincham, sent a fine pair of Cypripedium villosum auriferum and C. × Minos Youngii.

Mr. D. McLeod, Chorlton-cum-Hardy, sent a good plant of Cypripedium × Minos Youngii.

Votes of thanks were given to the following gentlemen for exhibits: Drewitt O. Drewitt, Esq., Charles Parker, Esq., H. Arthur, Esq., H. J. Craven, Esq., and Mr. J. Birchenall.

H. THORP.

ORCHIDS IN SEASON.

A VERY curious form of Odontoglossum crispum, called trilabellum, is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, who remarks that it is flowering for the fourth time, and has always been the same. The sepals have the shape and fringes of the petals, while the adjacent halves of the lateral sepals bear yellow crests and dark blotches like those of the lip, giving a remarkable appearance. The spike bears twelve flowers, and is very handsome. It is from the plant which was exhibited at a meeting of the Manchester Orchid Society, in May, 1906 (*O.R.*, xiv. p. 174).

A flower of Odontoglossum × armainvillierense var. Mossiæ is sent from the collection of John S. Moss, Esq., Wintershill, Bishops Waltham. It was raised in the collection by Mr. Kench, from O. Pescatorei crossed with the pollen of O. crispum Imperator (figured at page 81 of our fifth volume), and flowered for the first time in December last. It is of excellent shape, with broad white sepals and petals, the latter with a great red-purple blotch or cluster of spots in the centre, and the former with a few smaller spots and a light purple stain.

A flower of an attractive hybrid, raised from Læliocattleya amanda crossed with the pollen of Cattleya labiata, is sent from the collection of E. F. Clark, Esq., Chamonix, Teignmouth. It has retained a good deal of the character of the seed parent, but the segments are much broader and rose-purple in colour, with some very dark purple veining in the orange-yellow throat of the lip. Tho cross was made in November, 1900, and the seed sown in the following August, on a pot of prepared cocoa-nut fibre.

Inflorescences of two distinct and handsome forms of Læliocattleya illustre (L.-c. Latona × C. Dowiana aurea) are sent from the collection of John Leemann, Esq., West Bank House, Heaton Mersey. One has bright

reddish orange flowers, while the other has bright purple sepals and petals and a very dark blackish purple lip. A good flower of Cattleya × Enid is also sent. Mr. Smith remarks that they seldom get good flowers of the Cattleya group during December and January, as the situation is rather low, and with frequent fogs, and the deposit of soot on the glass, the light necessary for the development of good Cattleya blooms is lacking.

Flowers of Paphiopedilum × Bartelsii are sent from the collection of F. H. Moore, Esq., Royal Infirmary, Liverpool. They are from a batch raised in the collection, and Mr. Moore remarks that they vary considerably. The best is good in colour, but the curving back of the dorsal sepal is rather a defect. A richly-coloured P. × Kramerianum is also sent, together with a flower of the interesting old Cypripedium × discolor, Rchb., f., from the plant formerly in the collection of the late Mr. Reginald Young (*O.R.*, xiv. p. 350).

A very handsome hybrid is sent from the collection of Mrs. Ross, Poggio Gherardo, Florence, which is believed to be a hybrid from Paphiopedilum hirsutissimum and P. × Arthurianum. It is most like the former in general character, but the dorsal sepal and the lower halves of the petals are densely spotted all over dark purple-brown on a lighter green ground, while the apical portions of the latter are bright purple, and the front of the lip of a lighter purple shade. The staminode is nearly circular, pale green, with many short brown hairs, and a prominent central tooth. The leaves are rather elongated, narrow and clear green in colour. The plant is said to be six years old, and has bloomed once before. The combination has produced a particularly bright and attractive flower.

LÆLIA LUNDII.

THIS curious little Brazilian Lælia has just appeared in cultivation, a piece having been sent to Kew for determination by Messrs. Sander & Sons, with the information that it was imported as Lælia Regnellii. It was described in 1881, as Bletia Lundii (Rchb. f. & Warm. in *Otia Bot. Hamb.*, p. 92), from materials collected by Warming at Lagoa Santa, in the province of Minas Geraes, and was afterwards figured (*Warm. Symb. Fl. Bras. Centr.*, xxix. p. 845, t. 9, fig. 12). With a general resemblance in habit to Lælia Regnellii, it is easily distinguished by its habit of flowering on the undeveloped young growth—a character also seen in Cattleya Walkeriana. It is one of the smallest species in the genus, being about six inches high. The pseudobulbs are small and ovoid, with one or two narrow, very fleshy, subterete or channelled leaves, and the inflorescence is short and apparently single-flowered. Its base is covered by the imbricate sheaths of the young growths. The segments are just under ¾-inch long, and the narrow sepals and petals are white suffused with lilac, while the lip is three-lobed, with

small acute side lobes, and a broadly elliptical, very undulate front lobe, covered with bright purple radiating and reticulated veins. Though chiefly of botanical interest its appearance in cultivation is interesting. R. A. R.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during February, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The Annual General Meeting will be held at 3 p.m. on the former date. The agenda includes Report of the Council, Presidential Address, and Election of Officers. On the latter date the third Masters' Memorial Lecture will be given by Mr. A. D. Hall, M.A., F.R.S., on the Adaptation of the Plant to the Soil. Chairman, Arthur Dendy, Esq., B.Sc.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on February 3rd and 17th. The Orchid Committee meets at noon, and exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for March 3rd.

The following notes are extracted from the Report of the R.H.S. Council for 1910:—

A large and valuable gift of Orchids received from J. B. Field, Esq., together with others from the Hon. Mrs. Henry Gladstone, Colonel Rippon (a valuable consignment of Vanda cœrulea), Mrs. Davies Evans, and our Treasurer, have emphasised the necessity for a new Orchid house, which it is hoped may be built during the coming year.

The Lawrence Medal for 1909 has been awarded to Lieut.-Col. G. L. Holford, C.I.E., C.V.O., in recognition of the beautiful exhibits of Orchids which he has made during the past year. (The first Medal struck was presented to the President of the Society, whose name it bears).

The Council are arranging to co-operate with the Royal Agricultural Society in the promotion of a great Horticultural Show at Liverpool in June next, in connection with the R. A. S. Annual Show. Fellows are requested to give all the assistance in their power.

LIBRARY.—Negotiations are pending with the Trustees with the object of uniting the Lindley Library more indissolubly with the Society—legal difficulties stand in the way, but there is every hope that the year 1910 will see them overcome, and the union between the Lindley Library and the Society placed on a thoroughly satisfactory basis.

ORCHID NOMENCLATURE.—The rapidly increasing number of multi-generic hybrids, and the confusion likely to arise unless a definite system of

nomenclature is created, led to the formation of a Special Committee to consider what system would be most suitable. Their report has been received; it summarises the opinions of expert scientists and hybridists, at home and abroad, and the Council have sent it for consideration at the International Congress to be held at Brussels in April next.

THE GERMINATION OF ORCHIDS.—This is one of the questions to be submitted to the International Horticultural Congress to be held at Brussels from April 30th to May 3rd next.

ORCHID PORTRAITS.

ANGULOA CLIFTONI.—*Gard. Mag.*, 1910, pp. 83, 84, with fig.

BRASSOCATTLEYA CLIFTONI MAGNIFICA.—*Gard. Mag.*, 1910, p. 31, with fig.

CALANTHE LILACINA, Loher.—*Gard. Chron.*, 1910, i. p. 66, fig. 38.

CATTLEYA × IRIDESCENS SPLENDENS.—*Journ. Hort.*, 1910, i. p. 27, with fig.

CIRRHOPETALUM MEDUSÆ.—*Garden*, 1910, i. p. 52, with fig.

CŒLOGYNE CRISTATA (with 1,400 flowers).—*Gard. Chron.*, 1910, i. p. 40, with suppl. tab.

CYPRIPEDIUM FAIRRIEANUM (group).—*Journ. Hort.*, 1910, i. p. 73, with fig.

CYPRIPEDIUM × MRS. F. SANDER.—*Gard. Chron.*, 1910, i. p. 19, fig. 19.

CYPRIPEDIUM ROTHSCHILDIANUM.—*Journ. Hort.*, 1910, i. p. 3, with fig.

ERIA RHODOPTERA, Rchb. f.—*Bot. Mag.*, t. 8296.

LYCASTE SKINNERI ARMENIACA.—*Journ. Hort.*, 1910, i. p. 51, with fig.

ONCIDIUM MACRANTHUM.—*Gard. Life*, Jan. 1st, 1910, i. p. 366, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

J.M.—Clearly not from Cattleya Dowiana aurea × labiata. We should say a form of C. × Williamsiæ, or very near that, for the influence of C. Loddigesii is quite obvious.

X.—We think the name proposed for your hybrid is unsuitable. Fragments of two personal names placed together in this way give a quite misleading impression. The name has not even the merit of being euphonious, and a simple one could easily be found.

Photographs received with thanks.—McR.

R.S.R.—Pamphlets received with thanks. A note is held over.

J.W.—We believe drip from the roof to be one of the principal causes of spot, and it generally occurs during the winter months. Prevention is the only cure.

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VOL. XVIII.] MARCH, 1910. [No. 207.

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *MARCH*, 1910. [No. 207.

THE AMATEUR'S COLLECTION.

THE winter-blooming Cypripedes have helped us through the long dull season very nicely, and will continue to make a display for some time yet. The hybrids, especially, have the merit of keeping up a succession of bloom, some of them commencing almost as early as C. insigne and its varieties, while others scarcely begin to bloom till the New Year is well in. They are capital plants for the amateur, being easily grown, and seldom injured much by fogs, in spite of their period of blooming and the fact that so many are grown in urban districts, where fogs are often prevalent. The two facts are sufficient to account for their popularity, and as improvements are being made every year by hybridisation, there is evidently a great future before them. The use of the best varieties as parents is an important factor in this improvement, and already some of the older kinds are gradually being discarded. The number of excellent kinds now obtainable is so great that no difficulty need be experienced in making a useful selection, but in order to avoid disappointment it would be well to purchase plants in flower, or varieties of known reputation.

At last there are signs of renewed activity among our plants. The Dendrobiums are now making a good display, especially a few of the early-blooming hybrids and other kinds that completed their growth early and have had a good cool rest. The latter is an important point in the case of such kinds as D. nobile, D. Wardianum and their hybrids, though severe drying off in the winter is not so much practised as formerly. Such evergreen kinds as D. densiflorum and thyrsiflorum should not be severely dried, nor yet placed in a cooler temperature than the Intermediate house. A little more water will be required as the buds develop, but do not attempt to hurry them on by placing the plants in too much heat, which will deteriorate the quality of the flowers. They are very beautiful when well grown, but it is useless to attempt them in a Cool house.

Cattleya Trianæ and Percivaliana are now blooming, and when well grown are very effective. The former is especially useful at this season, though the flowers sometimes suffer in foggy districts. A little more water will be required as the buds develop in the sheath, and a fairly light position

should be chosen for the plants. There are also a number of showy hybrids which flower at this season.

Cœlogyne cristata and its varieties are now flowering, and no plant is more deserving of attention by the amateur, being easily grown and remarkably floriferous under suitable conditions. One can have three quite distinct forms of this beautiful plant, the typical C. cristata, with orange-yellow markings and fringes on the lip, the variety Lemoniana in which these parts are citron-yellow, and alba, in which the entire flower is pure white, one of the few really pure white Orchids in cultivation.

Another very graceful and easily-grown Orchid is now flowering freely, namely Dendrochilum glumaceum, and its delightful heliotrope-like fragrance should secure it a place wherever a Warm or Intermediate house is available. Good specimens are easily grown in moderate-sized pots, and such plants will yield a profusion of graceful spikes of white flowers. D. filiforme, which has long pendulous spikes of greenish yellow flowers, and is sometimes known as the Golden Chain Orchid, is equally worthy of attention.

In the Cool house a number of beautiful Odontoglossums are in bloom and numerous spikes are developing. O. crispum seems to bloom at all seasons, though the maximum display is seen during the two following months. A few plants are already out, and with O. Pescatorei, O. × Andersonianum and a few other hybrids are already brightening up the house. O. Edwardii is throwing up stout spikes, and the charming little O. Rossii and O. Cervantesii will soon be in bloom. The pure white Masdevallia tovarensis is now a picture where it succeeds well, and a few blooms of the scarlet M. ignea are already in evidence. A touch of colour is also supplied by the brilliant Sophronitis grandiflora, now flowering freely. It grows best in the Intermediate house.

A period of activity is setting in, and for some time the amateur will find his hands pretty full with potting, topdressing, and generally looking after the wants of his favourites, but these details are dealt with in the Calendar of Operations for the month.

As a regular subscriber to the *Orchid Review*, I was very pleased to see in recent issues (vol. xvii. pp. 292, 369) articles on the Amateur's Collection, and noted that in all probability it would be continued each month. Being an amateur myself, I should like to see at least a page each month in this, the only magazine devoted entirely to Orchidology. Your *Orchid Stud-Book* is of great value, and I am looking forward to future supplements with pleasure. With reference to the naming of Orchids, I am of the opinion that the large growers when compiling their Catalogues could now to a great extent remedy the growing confusion, of which I may give three instances. Comparing the *Stud-Book* with Catalogues, I find

(1) Dendrobium × Mrs. A. M. Walker, the parents of which is stated as D. nobile × Robinsonianum (× Ainsworthii), but this hybrid is already named D. × Rubens. (2) Cattleya × Armstrongiæ, of which the parentage is given as C. × Hardyana × Harrisoniæ. The latter parents, however, produce C. × Cypheri, while C. × Armstrongiæ is said to have been derived from C. × Hardyana × Loddigesii. Although C. Harrisoniæ and C. Loddigesii are somewhat similar, it is generally agreed that they are quite distinct. (3) Paphiopedilum Rothschildianum × villosum is listed as Baron Komura in one list, and as P. Rothschildiano-villosum is another, but the *Stud-Book* calls it P. × Vacuna. Many other instances could be quoted.

My collection, numbering just over four hundred plants, occupies three houses, 16ft., 14ft., and 14ft. long by 7ft. 6in. wide, and among the plants grown are :—Brassocattleya Holfordi, Maroni, Praetii, and Veitchii, Brassolælia Ceciliæ and Helen, Cattleya × Cypheri, × Fabia and × Mantinii, Læliocattleya Antigone and Greenwoodii, Paphiopedilum × Balmedieanum (Stonei × Fairrieanum), × Edith, × Elsie var. magnificum, × Goodsoni, insigne Harefield Hall var., i. Sanderæ, × Lawrebel, × Mabeliæ, × Margery, × Rolfei, Rossetti, × Transvaal superbum, × Vacuna, &c.

In conclusion I should like to voice my appreciation of the *Review*, and I can assure you it has been of great service to me, and I wish it continued success.

R. L. V.

We thank our correspondent for his appreciative note, and quite agree with his remarks on the naming of hybrids. We realise the difficulties involved, but the publication of the *Orchid Stud-Book* should check some of the confusion, at all events so far as the older hybrids are concerned. We certainly do not think a new name was required for any hybrid between D. nobile and D. × Ainsworthii, for the *Stud-Book* shows sixteen distinct names for it, the oldest of which is D. × Rubens, which we adopted. It is simply a primary hybrid re-crossed with one of its original parents, and its numerous forms can easily be classed as varieties of one. Any difficulties under this head arise from the fact that some of the seedlings might resemble forms of D. nobile and others forms of D. × Ainsworthii. The case of Cattleya × Armstrongiæ is a little more difficult, because C. Loddigesii and C. Harrisoniæ—or C. Harrisoniana, to use the older name—are sometimes confused in gardens, and their history and differences are not completely cleared up. The name Paphiopedilum × Baron Komura is not in harmony with the laws of botanical nomenclature, nor with the R.H.S. rule which requires that "hybrids between species should be named in Latin." And P. × Rothschildiano-villosum is too long, consisting of eight syllables, which brings it under the heading of sesquipedalian names, which are not

admissible. It was owing to this fact that the name of P. × Vacuna was adopted in the *Stud-Book*.

We have mentioned this matter in detail, because it is typical of a large number of cases of confusion, which we cannot help thinking might and ought to be avoided. We are not alluding to mere mistakes, but to matters in which questions of principle are concerned. We have already pointed out that the R.H.S. sometimes give certificates to plants that are not named in accordance with its own rules, yet the General Recommendations attached to the Rules state, "The Orchid Committee should decline to recognise any unauthorised name, . . . or one which is not applied in conformity with the preceding rules." And this neglect sometimes leads to complications. Some time ago they certificated a primary hybrid under a vernacular name, which was amended in the *Stud-Book*. Afterwards another primary hybrid was certificated under the amended name, and we wrote to the exhibitor suggesting a new name. He replied, pointing out the recognition of the vernacular name, adding, however, that he had not the slightest objection to the suggested amendment.

It is the nomenclature of secondary hybrids that is giving most trouble, and we are fully aware that the R.H.S. Rules say "Crosses between varieties *raised artificially* should receive suitable vernacular or informal names." We, on the other hand, adopted the idea that may be briefly expressed as "One cross one name," pointing out that the other rule in such a case as Paphiopedilum × aureum had permitted nearly forty distinct names for the products of a single cross. We issued a protest at the time, and these plants are now mostly classed as varieties of P. × aureum. The difficulty of what would otherwise be a perfectly rational system is the wide range of variation often seen among seedlings from the same capsule, and especially the fact that some of them more nearly resemble seedlings obtained from different crosses. This is the fact which best supports the argument for naming them as florists' flowers, but if such a rule is to be observed, it should be accompanied with the proviso that only the most distinct and improved forms should be named, all others being ignored. Otherwise it opens the ground for endless confusion. The other day a hybrid between Dendrobium × Ainsworthii and D. Findlayanum was certificated by the R.H.S., but a glance at the *Stud-Book* shows thirteen different names already for this cross. There all are treated as forms of D. × melanodiscus, which at all events establishes a connection between them. It is a more logical course than that of treating all of them as distinct hybrids, especially as several resemble each other very closely. A similar remark applies to many other secondary hybrids, and there are primary hybrids, and even species, which vary considerably, yet a system of varietal names serves to distinguish them.—ED.

NOVELTIES.

CALANTHE LILACINA, Loher.—A handsome Philippine Calanthe, having large flowers, with lilac sepals and petals, a strongly three-lobed lip, which is whitish at first, afterwards becoming nearly orange-coloured, and a clavate spur about as long as the sepals. It seems most allied to C. conspicua, Lindl., described many years ago from dried specimens. The flowers of C. lilacina are said to last quite four months in good condition.—*Gard. Chron.*, 1910, i. p. 66, fig. 38.

MAXILLARIA JOHANIANA, Kränzl.—A species of the M. irrorata group, which flowered with Mr. K. W. John, Andernach, Rhine, and is said to have been obtained from Peru. The flowers are white, with the upper half of the sepals and petals deep lilac, and the lip brown, densely covered with white meal on the disc.—*Gard. Chron.*, 1910, i. p. 66.

PLEUROTHALLIS ATTENUATA, Rolfe.—A small species of the Apodæ cæspitosæ group, which flowered in 1892 in the Royal Botanic Garden, Glasnevin, and recently at Kew. It has rather elongated narrow light green sepals and petals, banded with dark purple below, and a greenish white lip. Habitat unknown.—*Kew Bull.*, 1909, p. 365.

PLEUROTHALLIS BIRCHENALLII, Rolfe.—A Colombian species, introduced from near Velez, by Mr. J. Birchenall, Alderley Edge, who flowered it in April, 1909. It is allied to P. insignis, Rolfe, and has long acuminate sepals and petals, the former dull reddish purple margined with green, and the latter light green striped with brown at the base.—*Kew Bull.*, 1909, p. 365.

BULBOPHYLLUM NUDISCAPUM, Rolfe.—An African species, with a hairy, purple lip, markedly differing from B. barbigerum by its very long scapes. It was collected long ago in Sierra Leone by Afzelius, and is now represented in several collections.—*Kew Bull.*, 1909, p. 365.

ERIA OCHRACEA, Rolfe.—A Malayan species, introduced by Curtis with Dendrobium cruentum and Cirrhopetalum Fascinator, and flowered at Kew in September, 1909. It is allied to E. ferruginea, Lindl., and has greenish yellow flowers marked with brown.—*Kew Bull.*, 1909, p. 366.

POLYSTACHYA CAMPYLOGLOSSA, Rolfe.—Introduced from Mombassa by Messrs. Sander & Sons, who flowered it in July, 1909. It is allied to P. confusa, Rolfe, and has green flowers with a brown stain on the base of the lip and foot of the column.—*Kew Bull.*, 1909, p. 366.

STANHOPEA CONVOLUTA, Rolfe.—Introduced from Antioquia by M. Fl. Claes, Brussels, who flowered it in September, 1909. It is near S. tricornis, Lindl., but has larger flowers, the sepals and petals ivory white, with buff tips to the latter, and the lip buff, with the interior of the sac orange.—*Kew Bull.*, 1909, p. 367.

MORMODES REVOLUTUM, Rolfe.—A Peruvian species introduced from Moyobamba by Messrs. Sander and Sons, who flowered it in July, 1909. It is allied to M. speciosum, Linden, and has deep buff yellow flowers, with a reddish brown lip.—*Kew Bull.*, 1909, p. 367.

ONCIDIUM ANFRACTUM, Rolfe.—A Venezuelan species, which flowered with Messrs. Hugh Low & Co., in July, 1908. A dried specimen had long been confused with O. Reichenbachii, Lindl. It has a long flexuose inflorescence, and bright yellow flowers with some brown markings.—*Kew Bull.*, 1909, p. 367.

SACCOLABIUM PLATYCALCARATUM, Rolfe.—A species of the Calceolaria group, from Upper Burma, introduced by Messrs. Sander & Sons, who flowered it in February, 1909. The sepals and petals are yellow, spotted with brown, and the lip whitish with a green centre to the front lobe, and a flattened spur.—*Kew Bull.*, 1909, p. 368.

ACRIOPSIS LATIFOLIA, Rolfe.—A very distinct species, introduced from the Straits Settlements, and flowered at Kew in April, 1909. The leaves are several times broader than the species previously known, and the flowers whitish yellow with some red-purple stripes and spots.—*Kew Bull.*, 1909, p. 368.

CYPRIPEDIUM × BEECKMANII is a plant of doubtful parentage, and a flower from the collection of H. S. Goodson, Esq., Fairlawn, Putney, affords an opportunity of re-comparing its characters. It was originally exhibited by Messrs. Linden at a meeting of the R.H.S. held in November, 1897, as a hybrid from C. Boxallii × bellatulum, but the use of the latter as one of the parents is said to have been doubted by most of the members of the Orchid Committee. It was figured in *Lindenia* (xiii. t. 600), and from the text it appears that C. × Sallieri had been suggested as a much more likely second parent. Later on C. × auriferum, said to have been derived from the same parentage, was also figured (*l.c.*, xvii. t. 771), and in this the yellow colour is much more suggestive of C. × Sallieri Hyeanum or of a yellow form of C. villosum. In neither case is there the slightest trace of C. bellatulum, which may be definitely dismissed. C. × Sallieri is a form of C. nitens, and its hybrid with C. Boxallii is known under the name of C. × Parkerianum. This seems a more likely parentage than Boxallii × insigne, known as C. × Schlesingerianum, a plant which has some sixteen synonyms. Whether the different plants grown as Beeckmanii are all divisions of the original we cannot say, but the figure cited is only remotely like the flower sent. It would be interesting to compare it with batches of later seedlings obtained by crossing P. insigne and P. Boxallii with P. × nitens or any of its varieties.

ORCHIDS FROM FINCHLEY.

Several beautiful Orchids are sent from the collection of G. Hamilton-Smith, Esq., Church End, Finchley, by Mr. Coningsby. An inflorescence of Odontoglossum apterum (nebulosum) candidulum is from a plant that came from Messrs. Williams, of Holloway, when their Orchids were disposed of. The flowers are pure white, with an orange-yellow crest to the lip. It is said to be a weak grower, making very small bulbs. A beautiful flower of Cattleya Trianæ delicata has a tinge of lilac, chiefly in the lip, and is said to vary in this respect. Last year it was almost white. Two very richly coloured flowers of C. Percivaliana are said to be the only ones out of a batch of three dozen that have not been spoilt by the recent dull weather. The species is said to grow well there, but will not stand dull weather like C. Trianæ does. An inflorescence from a plant purchased as Dendrobium Kingianum proves to be a white form, and belongs to D. delicatum, Bailey, whose history was given at page 88 of our sixteenth volume. The plant has six racemes. There are also flowers of the beautiful Brassocattleya Hyeæ, which it is remarked generally flowers twice a year. one of Scuticaria Steelii, which has been out for nearly a month, and a very fine Paphiopedilum × aureum Œdippe, with a deep purple band and much purple suffusion on the dorsal sepal. Lastly must be mentioned a very deep yellow Odontoglossum, well spotted with red-brown, and most like O. × excellens. It is said to be the result of crossing O. triumphans with O. × ardentissimum. The plant is very small at present and is producing its first flower. It should develop into a fine thing.

Eria clausa.—This curious little Eria has just flowered in the collection of Sir Trevor Lawrence, Bart., the plant having been sent from Darjeeling by Mr. Bignold. It is a native of Sikkim, and is said to be not uncommon at elevations of 3,000 to 5,000 feet, flowering in February and March. It was described in 1896 (King and Pantl. in *Journ. Asiat. Soc.*, lxv. p. 121), and was afterwards figured (*Ann. Roy. Bot. Gard. Calc.*, viii. p. 121, t. 167). It is allied to E. vittata, Lindl., but is considerably smaller, and has erect racemes of small whitish-green flowers, with three much elevated purple keels at the base, and seven on the upper half, these becoming much paler in colour and somewhat verrucose near the apex. The authors remark that in many cases the flowers are self-fertilised and do not open, a character which evidently suggested the specific name, though it is hardly applicable when the flowers open normally, as in Sir Trevor's plant. There are several species of Orchids which have a tendency to produce cleistogamous flowers, and among them we recall Dendrobium crepidatum and Maxillaria rufescens.—R.A.R.

PHALÆNOPSIS PALLENS.

THE history of this rare Phalænopsis was given ten years ago (*O.R.*, viii. p. 327), when a plant which had been imported from Perak flowered at Kew, and proved to be identical. The circumstance afforded a clue to the habitat, which, when the plant originally appeared at Chatsworth half a century earlier, had been recorded as "Manila." Another interesting detail can now be recorded. The Kew plant has again flowered, side by side with P. denticulata, Rchb. f., and a careful comparison shows them to be forms of the same species, which is rather curious. When Reichenbach described P. denticulata, in 1888, he remarked that the denticulate margin of the lip was only known in P. pallens, and it is curious that he did not discover their identity. But his P. pallens was simply based on the imperfectly known Trichoglottis pallida of Lindley, and the erroneous habitat would tend to further obscure the identity of the two plants. In my note on P. pallens I suggested that it might be a natural hybrid between P. cornu-cervi and P. sumatrana, but the new discovery places the matter in a rather different light. After my note appeared I found a drawing by Mr. Day of a flower from Mr. Rucker's collection, and I then wrote a note about both plants (*O.R.*, xiii. p. 226), though I did not identify them together. I remarked, however, that I should like to know more of their relationship to each other and to P. fasciata, Rchb. f. (another doubtful plant), also to the well-known species P. sumatrana and P. cornu-cervi, both materials and information being very meagre.

P. pallens is a pretty little plant, much resembling P. violacea in habit, and bearing short racemes of cream-yellow flowers, the sepals and petals transversely barred with brown, and the denticulate front lobe of the lip bearing an acute hairy keel, and the erect side lobes two deep yellow blotches in front. The front lobe sometimes bears a pair of purple lines on each side of the keel, but these are not present in Lindley's original plant.

R. A. ROLFE.

DIURIS LONGIFOLIA is a very interesting Australian Orchid to which a Botanical Certificate was given by the R.H.S. on February 22nd, when exhibited from the collection of Sir Jeremiah Colman, Bart. It is one of the commonest of a very distinct and attractive genus of Australian Orchids, numbering over a dozen species. It has numerous grass-like leaves, and erect scapes 1 to 1½ feet high, with a raceme of three to six flowers, over an inch across, and yellow in colour, with some reddish brown on the petals and lip. The petals are spathulate, with an elongated limb. D. corymbosa, Lindl., now considered to be a form of the same, is figured in Hooker's *Flora Tasmaniæ* (ii. p. 7, t. 105, fig. B). The species is found in South and West Australia, Victoria and Tasmania. R. A. R.

CIRRHOPETALUM CAMPANULATUM.

THIS charming little species has again flowered at Kew, and the annexed figure is reproduced from a photograph taken by Mr. Raffill, which shows the plant reduced about one-half. It was described about a year ago as Bulbophyllum (Cirrhopetalum) campanulatum, Rolfe (*Kew Bull.*, 1909, p. 62), and afterwards figured (*Bot. Mag.*, t. 8281), the reduction of the genus Cirrhopetalum being insisted on by several recent writers. But it is very well pointed out in the *Botanical Magazine* that the recognition of the section Cirrhopetalum as a floristic group apart from Bulbophyllum has certain practical advantages that appeal to cultivators. It is also by no means improbable that the great and unwieldy genus Bulbophyllum, as understood

Fig. 6. CIRRHOPETALUM CAMPANULATUM.

by some botanists, will have to be subdivided. The plant is a native of the East Coast of Sumatra, and was sent from the Brussels Botanic Garden in 1908, and flowered at Kew in October of that year. It is allied to C. auratum, Lindl., a plant figured in the *Botanical Register* (1843, t. 61), which was introduced by Messrs. Loddiges, it is now believed from the Malay Peninsula. The habit of C. campanulatum is well shown in the figure, and it may be added that the scapes measure three inches long. The flowers are, as usual, borne in an umbel, but the ten or eleven pairs of united lateral sepals are so strongly deflexed as to give a campanulate appearance to the inflorescence, in reference to which the specific name is

given. They are rose-pink in colour, with a few minute darker dots and paler margins. The dorsal sepal and petals are yellowish, with dusky brown lines, and all strongly fringed with dark purple hairs. The lip is reddish purple, and, as usual, very delicately balanced. Another remarkable feature is that the flowers as soon as they open begin to exude a slightly gummy liquid, which is seen as glistening points on the lateral sepals, down which it trickles, ultimately falling off in drops. Five of these drops can be distinctly seen on the lower inflorescence in the photograph, which is the younger of the two. This has evidently some connection with the fertilisation of the flowers, but to make out its full significance it would be necessary to observe the plant in its native surroundings. It is a charming little plant and succeeds well suspended in a pan in the Warm house, in the usual compost. R. A. R.

R.H.S. ORCHID COMMITTEE.

THE following gentlemen constitute the Orchid Committee of the Royal Horticultural Society for the current year. New members are indicated thus.*

FOWLER, J. GURNEY, J.P., Glebe Lands, South Woodford, *Chairman.*

VEITCH, HARRY J., V.M.H., F.L.S., 34, Redcliffe Gardens, S.W., *Vice-Chairman.*

*HOLFORD, G. L., Lieut.-Col., C.I.E., C.V.O., Westonbirt, Tetbury, Glos., *Vice-Chairman.*

COLMAN, SIR JEREMIAH, Bart., V.M.H., Gatton Park, Reigate, *Vice-Chairman.*

O'BRIEN, JAMES, V.M.H., Marian, Harrow-on-the-Hill, *Hon. Sec.*

ALCOCK, J. FORSTER, Northchurch, Berkhampstead.

ALEXANDER, H. G., Westonbirt Gardens, Tetbury.

ASHWORTH, ELIJAH, Harefield Hall, Wilmslow, Cheshire.

BALLANTINE, H., V.M.H., The Dell Gardens, Englefield Green.

BOLTON, W., Wilderspool, Warrington.

BOUND, W. P., 112, Station Road, Redhill.

BOXALL, W., V.M.H., 186, Brook Road, Upper Clapton, N.E.

BROOMAN-WHITE, R., Arddarroch, Garelochhead, N.B.

BUTLER, W. WATERS, Southfield, Norfolk Road, Edgbaston.

CHAPMAN, H. J., Oakwood Gardens, Wylam-on-Tyne.

CHARLESWORTH, J., Lyoth House, Haywards Heath.

*CLIFTON, J. TALBOT, Lytham Hall, Lytham.

COBB, W., Normanhurst, Rusper, Horsham.

*COOKSON, CLIVE, Oakwood, Wylam-on-Tyne.

CRAWSHAY, DE BARRI, Rosefield, Sevenoaks.

CURTIS, C. H., 2, Adelaide Road, Brentford, Middlesex.

CYPHER, J., Queen's-road, Cheltenham.
DYE, A., Tring Park Gardens, Tring,
HANBURY, F. J., F.L.S., Brockhurst, East Grinstead.
HATCHER, W. H., Rawdon, Leeds.
LITTLE, H., Baronshalt, The Barons, E. Twickenham.
LOW, STUART H., Bush Hill Park, Enfield.
LUCAS, C. J., Warnham Court, Horsham.
MCBEAN, A. A., Cooksbridge, Sussex.
MOORE, F. W., M.A., V.M.H., Botanic Gdns., Glasnevin, Dublin.
MOORE, G. F., Chardwar, Bourton-on-the-Water, Glos.
OGILVIE, F. MENTEITH, 72, Woodstock Road, Oxford.
POTTER, J. WILSON, 219, Ashley Gardens, S.W.
SANDER, F., V.M.H., St. Albans.
THOMPSON, W., Walton Grange, Stone, Staffs.
THWAITES, R. G., 23, Christchurch Road, Streatham, S.W.
TRACY, H. A., Amyand Park Road, Twickenham.
WHITE, W. H., Burford Lodge Gardens, Dorking.
WILSON, GURNEY, F.L.S., Glenthorne, Haywards Heath.

CYPRIPEDES FROM BRACKNELL.

SOME interesting seedlings are sent from the collection of Lt.-Col. Sheppee, Holly Spring, Bracknell, by Mr. Swanborough. Two are from seedlings which are said to have appeared with several others on a clump of Cypripedium bellatulum, shortly after it was imported from Burma. This clump was a mass of roots, with a good deal of loam and a kind of lime-stone attached to them, and was laid on the stage in the East Indian House till it commenced to grow, when it was potted in a perforated pan. Shortly afterwards the seedlings appeared, apparently coming from the roots near the surface, but pushing up through the soil, two of them actually growing out of the side holes of the pan. There are about a dozen seedlings, some of them resembling C. Spicerianum in growth, but some have longer and narrower leaves, of more upright growth, while one is tessellated, about the colour of C. × Harrisianum, but likely to be stronger, and one appears to be a true bellatulum, and promises to flower shortly. The writer remarks: "It has been a puzzle to me altogether how to account for them, as the bellatulum was not in the same house as the other Cypripedes, and I always take great care to prevent seed from getting blown about, and keep it all quite close in pill boxes. The clump came direct from Burma to the friend from whom I received it, and he does not grow any Cypripedes. I cannot form any idea what the cross may be, but Spicerianum appears to have been one of the parents. On referring to my book I find that at about the time I received the clump I had sown some seed of Spicerianum × Charles-

worthii and the same × Leeanum superbum, neither of which appear to have germinated, but I do not think it probable that any of these could have come in contact with the clump."

The two flowers sent are most like C. Spicerianum, and might be a form of C. × Bruno, the cross with × Leeanum. We cannot distinctly trace C. insigne or Charlesworthii, but on the other hand they are not pure Spicerianum. A natural hybrid seems out of the question, and we suspect that in some way a few seeds have got astray, as they sometimes will in the most unaccountable manner, and in any case the Harrisianum-like plant looks suspicious. The C. bellatulum might be from imported seed, for seedlings of this have previously appeared. In any case the clump of bellatulum roots and attached compost seem to have formed a good seed bed.

Flowers of two other interesting hybrids are also sent. The first is from C. Spicerianum × Schusterianum (villosum × Hookeræ), and of this five flowers are sent to show the variation. One of them closely resembles C. villosum, except in its smaller staminode and slightly modified shape, while in another the preponderating influence of C. Spicerianum is almost as marked. (One seedling now out of flower is said to have turned out a nearly true Spicerianum). In the other three the characters of C. villosum are largely represented in the petals and lip, while the dorsal sepal is white, with a purple band, much purple veining and suffusion, and a green area with brown dotting at the base, while the staminode also approaches C. Spicerianum. The other two flowers are from C. × Schusterianum × Mastersianum. One of these has a green dorsal sepal, most like C. Hookeræ, the apical half of the petals red-purple, and the lower green densely spotted with brown. The other has almost the shape and shining surface of C. villosum, with the staminode almost of C. Mastersianum, and a broad rounded brown dorsal sepal with green margin and apex. The Schusterianum parent is common to both the crosses named, a point of great interest being, that partial reversion to both the original grandparents is shown—a very clear case of dissociation.

MENDELISM WITHOUT UNIT CHARACTERS.—A review by Mr. W. J. Shillman of a recently published work, entitled *Our knowledge of Melanin Colour Formation and its bearing on the Mendelian Description of Heredity*, by Oscar Riddle, concludes with the remark: "The writer hopes in the near future to be able to present a theory of Mendelian inheritance which is independent of the idea of unit characters and wholly independent of the idea of discontinuous variation." This is interesting, for the term "unit-characters" is not included in Mendel's original essay, and we have always contended that they do not exist. They are only phases of heredity, or the permanence of specific character.

CALENDAR OF OPERATIONS FOR MARCH.

By W. C. PRICE, Oakdene, West Didsbury.

THE temperatures of the different departments for the coming month should be as follows:—

CYPRIPEDIUM house: Day, 68° to 73°; night, 68°; morning, 63°.

CATTLEYA house: Day, 65° to 70°; night, 65°; morning, 60°.

INTERMEDIATE house: Day, 62° to 68°; night, 62°; morning, 58°.

ODONTOGLOSSUM house: Day, 58° to 62°; night, 58°; morning, 55°.

The month of March is, I think, the worst of the whole year for keeping the temperatures anything like regular, therefore the above figures must be taken only as a guide, and be governed according to atmospheric conditions. Great care should be taken in using the top ventilators, as, although the sun may be shining brightly, and running the thermometer up far above the required figure, the wind may be very cold at the same time, and if the top ventilators are opened will cause a very harsh condition in the house, which must be avoided. The fires should be kept as low as possible, but ready for instant use in case of a sudden change of weather, which so often happens this month.

SHADING.—The blinds will now have to be in frequent use, at least we hope so. The sun when shining is now very powerful, and after having such a long spell of dull weather, the plants will quickly show ill effects if allowed to have too much direct sunlight.

DAMPING.—Now that most plants are showing signs of activity, there must be an increase of moisture in the houses. The stages and floors should be thoroughly damped three times a day, morning, midday, and again about five o'clock in the afternoon. It will also be of great benefit to the plants if they are well sprayed overhead two or three times a day on bright days with clean soft water, but not later than three o'clock for the last time. On a dull day once, about eleven o'clock, will suffice.

CYPRIPEDIUMS.—Most Cypripediums will now have finished flowering, with the exception of a few late blooming varieties, such as C. × Massaianum, C. × Transvaal, C. bellatulum, and others of that class. The grower will now be busy potting in this department, and should try to get it done as soon as possible, so that the plants can get well established, and give good flowering results in the autumn. Keep plenty of moisture around them, but do not give too much at the roots till they are nicely rooted. The later varieties must be left till after flowering before repotting.

DENDROBIUMS will be making their best show of bloom this month. Any that have passed out of flower, and are pushing new roots from the base of the young growth, should be repotted at once if they require it. Use the compost as recommended in the January Calendar. The grower must

be careful in watering them after repotting, as if they have too much the young roots will die off quickly, and weaken the plant. They should be kept on the dry side till the growths are about four or five inches high, by which time they ought to be well rooted, and then they can do with abundance of water.

CATTLEYAS.—Any plants of the autumn-flowering C. labiata requiring repotting should be attended to as soon as the new roots are seen pushing. Other Cattleyas that have flowered, and any plants that are not going to flower this season, should be treated in the same way. Use the compost as recommended last month. Vigorous plants that require a larger pot should be carefully taken out, even if you have to smash the pot to avoid breaking the roots. Do not disturb the ball more than is necessary. If any plants are not looking comfortable owing to various causes, such as overflowering, or by losing their roots—and I have never yet seen a house of Cattleyas which had not at least one plant in this condition—these should have all useless back bulbs cut off, and the plant should be placed in a pot just large enough to hold it, the pot filled two-thirds with crocks and the plant secured to a stick to hold it quite firm. Then place it in a shady moist corner, and keep the compost on the dry side till it gets well established again. The same treatment applies to Læliocattleyas.

THUNIAS.—About the middle of the month Thunias will require repotting. A good compost for them consists of one half good fibrous loam, one quarter peat, and one quarter fresh sphagnum moss, chopped fairly short. This should be well mixed together, with a sprinkling of coarse silver sand to keep it porous. Place about one inch of crocks at the bottom of the pot for drainage, and cover them with a layer of moss to keep the compost from working down among them. For strong plants place four bulbs in a six-inch pot, about two inches apart, round the centre of the pot, and tie each bulb to a neat stick. Pot moderately firmly, and bring the compost just to the base of the bulbs. Place them in a light position in a warm house, and give them a watering with a rose can to settle the compost. They will require very little water till well rooted, when they require abundance.

CŒLOGYNES.—Cœlogyne Massangeana and C. Dayana are now making their new growths, and should any require repotting they may be attended to. I prefer pans for these, and use a compost of one-third each of fibrous loam, peat, and sphagnum moss. They do best when suspended from the roof at the warmer end of the Cattleya house. They should not have too much water till well rooted, but care should be taken that they do not get quite dry at the root. C. cristata and its varieties will now be in full bloom. They should be given sufficient water to keep them plump, as flowering is a severe strain upon them, especially when heavily flowered. After the flowers are off they can be kept a little drier till the time comes for repotting.

C. pandurata is now making new growth, and should be repotted if requiring new compost. They do best when suspended in shallow pans from the roof of a warm light house, and may be grown in a compost of half each of Osmunda fibre and sphagnum moss, or if preferred in Osmunda fibre alone. They should not be allowed to shrivel for want of water, but if they have one good watering with a rose can after repotting, it will suffice if they are well syringed every day till well rooted.

ODONTOGLOSSUMS.—A great many Odontoglossum crispum are now in flower or spike, and the spikes should be tied up to neat green sticks, but not vertically. They should be tied just high enough to allow the spikes that graceful arching position which is natural to them. Continue repotting plants that require it, as advised in January. O. Pescatorei and its hybrids, O. × lepidum and O. × excellens, are now in flower, and as they pass out of flower should be kept a little drier at the root than O. crispum, till the young growths are about 1½ inches high, but should not be allowed to get quite dry. I find that they produce very strong spikes when treated this way. In other respects they require the same treatment as O. crispum. Give a mild fumigation with XL All fumigating compound every week, to make sure you have no thrip in the house. It is better to prevent thrips than to wait till you have them before fumigating.

LÆLIAS.—Lælia purpurata and its varieties will now be completing their young growths preparatory to flowering, and should have copious supplies of water. L. pumila, præstans and Dayana can now be repotted. They do well in shallow pans, large enough to serve them two years, and using Osmunda fibre for compost, or polypodium fibre and sphagnum moss, half of each. Suspend them from the roof, either at the warm end of the Cool house or the cool end of the Intermediate house. They should have only enough water to keep them plump till well rooted, when they require copious supplies.

LÆLIA ANCEPS will now be pushing a host of new roots from the last made bulb, and should be attended to if requiring new compost. They like being in baskets, where the roots can ramble at will. Use Osmunda fibre alone for compost, and pot firmly. Cut away old back bulbs, leaving four front bulbs to a plant. If a good-sized specimen is required place four or five plants in a seven or eight inch basket. Place the back of the plants close to one side of the basket with the leads towards the centre. They will then last two or three years without being disturbed, if due attention is paid to the watering. If they are well sprayed twice a day they will require very little water at the root till they commence to push new growths. The old back bulbs that are cut off can be put closely together in a pan, with a little sphagnum moss, and hung in a warm moist house, where, if they have a good eye, they will break away and give a good increase of stock.

LÆLIA AUTUMNALIS and its varieties do best when grown in pans, just large enough to hold them comfortably. They now require repotting, and we find that they do well in Osmunda fibre or the polypodium mixture. They should be potted firmly, and never allowed to get quite dry at the root. I think keeping them too dry at the root during the resting season is the cause of most failures in growing this class of Lælia. It shortens the life of the plant, and plants of this class are seldom seen to increase in vigour for many years together. L. albida and L. Gouldiana require the same treatment.

CATASETUMS, CYCNOCHES and MORMODES will require potting this month. They do best in baskets, just large enough to let them make their new bulbs without being cramped, and suspended from the roof in the warm Cypripedium house or ordinary plant stove. They require abundance of water when growing. A suitable compost for them consists of one-third each of good fibrous loam, peat and sphagnum moss, in a fairly rough state. When potting care should be taken so as not to bury the base of the bulbs below the compost, as they are very apt to rot off if the compost is above the base. A sharp watch should be kept for yellow thrip, which are very fond of the tender young growths, and soon spoil the look of the plant.

EPIDENDRUM VITELLINUM.—This very showy and useful species is now making new roots, and should be repotted before they get too far advanced. If the compost is good and sweet, and the pot large enough to allow them making their new bulbs, leave them till next season, as they do not like being disturbed more than is necessary. We find that they do very well at the warm end of the Intermediate house, and for compost we use one-third each of Osmunda fibre, peat and sphagnum moss, well mixed together. We use pots large enough to last them at least two years. They will only require enough water to keep them plump till the young growth is about two inches in height, when they require copious supplies till the new bulbs are completed.

EPIPHRONITIS VEITCHII.—This pretty hybrid is now in flower, and will require plenty of water. It does well with us, standing on inverted pans in the Cattleya house. They also do well when suspended from the roof in the same structure. After flowering, the stems may be cut through below a root and potted up in small pans, according to the size of plant required, in a compost of half sphagnum moss and Osmunda fibre, leaving the remaining bulb ends in the pans, where they will soon break away and make new plants. After flowering they should not be overwatered or syringed late in the day, as the foliage should be allowed to get quite dry before night, so as to avoid getting the black spot on the leaves, which is a great disfigurement to these plants, and is sometimes a cause of total loss.

PAPHIOPEDILUM × WELLESLEYÆ.

The annexed figure represents a very beautiful hybrid from the collection of Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), and is reproduced from a painting by Lamont, kindly sent by Mr. Wellesley. It was derived from Paphiopedilum × Venus crossed with P. insigne Harefield

Fig. 7. Paphiopedilum × Wellesleyæ.

Hall var., and was exhibited at a meeting of the R.H.S. held on January 11th last. It is a secondary hybrid in which P. insigne is twice represented, and the parentage may be expressed thus:—P. insigne × niveum=P. × Venus × insigne Harefield Hall var.=P. × Wellesleyæ. The insigne influence is strongly stamped on the flower, but there is more of the niveum

shape and colour than might have been anticipated. In the large size and spots of the dorsal sepal the influence of what we take to have been the pollen parent is very marked. The ground colour of the flower may be described as cream yellow, with the upper part of the dorsal sepal white, and a tinge of green below. There is a slight tinge of rose in the petals, and the numerous small spots are reddish purple, those on the dorsal sepal being clearer purple where they extend beyond the green. The lip is brownish yellow, and the staminode yellow, with a prominent darker boss, and a few hairs behind. It is certainly very handsome, and Mr. Wellesley remarks, "It is one of the finest things I have ever seen."

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on February 8th last, when there was a very fine display of Orchids, and the awards consisted of seven medals, four Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a choice group, including a pretty hybrid Odontoglossum raised from O. Edwardii and O. sceptrum, bearing a compact spike of chocolate-purple flowers, with a yellow crest to the lip, and another from O. triumphans and O. × percultum, having cowslip-yellow flowers, barred and blotched with red-brown, the rare Ipsea speciosa, Spathoglottis × Colmanii, Masdevallia melanopus, M. tortilis, Angræcum hyaloides, the rare Oncidium Sanderianum, Phaiocalanthe Colmanii rosea, Cynorchis Lowiana, Cirrhopetalum Mastersianum, the handsome Dendrobium × Lady Colman, &c. An Award of Merit was given to D. × Duchess of Albany (Ellisii × Wiganiæ xanthochilum), a charming thing, having blush-white flowers, with some narrow purple lines on the side lobes of the lip, and the disc tinged with sulphur. A Botanical Certificate was given to D. arcuatum, a pretty Javan species with slender leafy stems, and bearing racemes of about four white flowers, an inch across, with stout curved spurs. A Cultural Commendation was also given to a good plant of Cymbidium grandiflorum, bearing three racemes.

E. Rogerson, Esq., West Didsbury, (gr. Mr. Price), staged a choice group, to which a Silver Banksian Medal was awarded. It contained some good Dendrobium Wardianum, some handsomely blotched Odontoglossum crispum, O. × armainvillierense, O. × Fascinator, and others, with a number of good Cypripediums, the more noteworthy being C. × Mrs. E. Rogerson, a large and well-coloured flower, C. × Maurice (insigne Harefield Hall var. × Sallieri Hyeanum), a large and well-blotched yellow flower, C. × Olga Bagshawe, C. × Transvaal superbum, a fine dark C.

× Lawrebel, C. × Euryades, Price's var., C. × Zeus, Oakdene var., and other good things.

H. J. Bromilow, Esq., Rann Lea, Rainhill, Lancs. (gr. Mr. Morgan), received an Award of Merit for Cypripedium × Leeanum Excelsior, a very fine form, having a green base to the very broad white dorsal sepal, with numerous lines of rosy purple dots.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Cattleya Percivaliana, Westonbirt var., a remarkably large and handsome form, with magenta-rose sepals and petals and a very richly-coloured lip. He also sent Læliocattleya Ariel superba (L. Cowanii × C. Dowiana aurea), having reddish yellow sepals and petals, and a ruby-red lip with golden lines at the base, L.-c. Tigris (L. Cowanii × L.-c. Dominiana), remarkable for its bright yellow flowers, and Sophrocatlælia Danae, Holford's var., a pretty rose-coloured form, tinged with yellow, and an orange base to the lip.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), received an Award of Merit for Brassocattleya Wellesleyæ (C. Mossiæ Wageneri × B. glauca), a charming hybrid, having large blush white flowers most like those of the Brassavola parent, with a tinge of lemon yellow on the lip.

W. M. Appleton, Esq., Tyn-y-coed, Hill Road, Weston-super-Mare, sent Cypripedium × ingens (insigne × Rothschildianum).

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum × Lambeauianum, Goodson's var., a fine form, heavily blotched with rose-purple.

C. L. N. Ingram, Esq., Elstead House, Godalming (gr. Mr. Bond), sent Dendrobium × intermedium (Ainsworthii splendidissimum × nobile nobilius).

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), sent a handsome form of Odontoglossum × Lawrenceanum (Rolfeæ × triumphans).

J. J. Neale, Esq., Lynwood, Penarth (gr. Mr. Haddon), sent Lælia × lynwoodensis (Jongheana × harpophylla), a light yellow-flowered hybrid.

Mrs. Temple, Leyswood, Groombridge (gr. Mr. Bristow), sent a pretty rose-coloured Brassocattleya, derived from Cattleya Percivaliana × Brassavola glauca).

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent a hybrid derived from Cattleya Mendelii alba × C. Gaskelliana alba, having a pretty white flower with some rose-pink on the front of the lip.

Messrs. Charlesworth & Co., Haywards Heath, sent a very handsome group, to which a Silver-gilt Flora Medal was awarded. It contained beautiful examples of Odontioda Bradshawiæ and keighleyensis, a number of very beautiful Odontoglossums, Calanthe Regnellii rosea, and a fine

series of others, Spathoglottis × Veitchii, the rare Sophronitis violacea, Xylobium leontoglossum, finely-flowered examples of Miltonia × Bleuana, Cattleya × Luegæ (Enid × Dowiana Rosita), Sophrolælia Leda, a well-bloomed S.-l. Psyche, and many other good things.

Messrs. James Veitch & Sons, Chelsea, also received a Silver-gilt Flora Medal for a rich group, containing some good Odontoglossums, Brasso-cattleya × Veitchii, Cattleya Trianæ Courtauldiana and others, some good Dendrobiums, including D. × Cassiope and others raised by the firm, and many good Cypripediums, among which a batch from C. villosum × Euryades showed a remarkable amount of variation. There were also C. insigne Sanderæ, raised from seed, C. × Golden Glory, a bright yellow hybrid of unknown parentage, with a few spots on the dorsal sepal, C. × Little Gem, C. × Minos Youngii, some good forms raised from C. × Actæus and C. × Euryades, with many other fine things.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a beautiful group of Calanthe × Sandhurstiana and others, Odontoglossums and Cypripediums, the latter including C. × Mrs. Wm. Mostyn, × Beeckmanii, × Curtmanii, villosum auriferum, and many others.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Flora Medal for a beautiful group, including some good Cattleya Trianæ, both white and coloured, a series of C. Percivaliana, including the white variety Little Gem, and another with a remarkably dark lip, Aërides Vandarum, Epicattleya × Nebo, Dendrochilum glumaceum, Oncidium ornithorhynchum album, Cymbidium × Holfordianum, and a fine series of Odontoglossums and Dendrobiums.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a very beautiful group, including some well-flowered Phalænopsis Schilleriana, with a pretty natural hybrid of uncertain origin, a richly coloured hybrid from Dendrobium Venus and D. nobile nobilius, some fine Cattleya Trianæ, Calanthe × Butterfly, white with rose-crimson lip, Odontoglossum × harvengtense, a large dark O. × Wilckeanum, and various other good things.

Mr. E. V. Low, Haywards Heath, received a Silver Banksian Medal for a small group, including some good Cymbidium × Wiganianum, Cypripedium × Thalia, Mrs. Francis Wellesley, C. × Beeckmanii with twin flowered scape, C. × Actæus langleyense, C. × Thompsoni, C. × aureum virginale, C. × a. Hyeanum, C. × a. Surprise with three flowers, &c.

M. Maurice Mertens, Ghent, sent two plants of the beautiful Cattleya × Suzanne Hye de Crom, with Odontoglossum × armainvillierense, × Vuylstekei, × laudatum, and a few others.

At the meeting held on February 22nd there was again a brilliant display of Orchids, and the awards consisted of one Gold and seven other medals, one First-class Certificate, six Awards of Merit, and one Botanical Certificate.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a magnificent group, which occupied the whole length of the staging on one side of the entrance, and to which the Society's Gold Medal was deservedly awarded. The centre consisted of hybrid Calanthes, with some good examples of Spathoglottis × Colmanii, and a couple of fine Odontoglossum Edwardii, while in front were some good Dendrobium nobile virginale. On either side were many fine hybrid Dendrobes, mostly raised in the collection, including the beautiful D. × Lady Colman, D. × Duchess of Albany, and many other hybrids too numerous to mention, the rare D. Hodgkinsoni, D. fusiforme, and a fine clump of D. æmulum, Odontoglossum × atropurpureum (Edwardii × sceptrum), Odontioda Bradshawiæ with 20 flowers and buds, Cymbidium grandiflorum with several spikes, the rare Sarcochilus Fitzgeraldii, Cœlogyne cristata alba, Epidendrum polybulbon, Phalænopses, Bulbophyllums, Sophrolælias, &c. An Award of Merit was given to Dendrobium × Mrs. Fenton Horton (melanodiscus × Findlayanum), a pretty blush-white form, with a yellow disc to the lip, and a purple blotch at the base, and a Botanical Certificate to Diuris longifolia, a graceful Australian Orchid, which is noted on p. 68.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum × Vuylstekei, Læliocattleya Clive superba, L.-c. Myra, and Cattleya Schrœderæ The Prince, the latter a beautiful blush-pink form, with a purple blotch in front of the lip, gaining an Award of Merit.

E. Rogerson, Esq., Oakdene, West Didsbury (gr. Mr. Price), received an Award of Merit for Odontoglossum × eximium E. G. Rogerson, a handsomely blotched form, the markings being rose-purple on a white ground.

Col. Cary-Batten, Abbots Leigh, Bristol (gr. Mr. Spowage), sent Cypripedium × Mrs. Cary-Batten, a dark form of C. × nitens, and C. × Col. Cary-Batten.

R. Brooman White, Esq., Arddarroch, Garelochhead (gr. Mr. Smith), sent cut spikes of a number of good forms of Odontoglossum crispum.

W. P. Burkinshaw, Esq., West Hill, Hessle, Hull, sent Cypripedium × Chanteury (Euryades punctatum × insigne Chantinii), and C. × Chanticler, a hybrid of C. insigne Harefield Hall var.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Læliocattleya Goldfinch superba (L.-c. warnhamiensis × C. Dowiana aurea), having bright yellow sepals and petals, and the front of the lip ruby-crimson, with some yellow veining in the throat; also a flower of the striking Brassocattleya Alexanderi (C. × citrina × B. Digbyana).

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood), sent Cymbidium × Lowgrinum, Rosslyn var., a rather dark form.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Black), sent a pretty hybrid Dendrobium from D. Wiganiæ xanthochilum and D. Thwaitesiæ, having cream yellow flowers with a purple blotch on the lip, and Odontioda × Seymourii (Odontoglossum Uroskinneri × Cochlioda vulcanica), a very interesting hybrid bearing numerous tawny red flowers, with narrow petals, and the lip white in front, with some lilac markings behind.

Messrs. Sander & Sons, St. Albans, staged a very fine group, to which a Silver Flora Medal was given. It contained some good Dendrobium Phalænopsis in the centre, various fine Læliocattleyas, Phalænopsis Schilleriana, a fine Odontioda Charlesworthii, O. cuprea (Cochlioda Nœtzliana × Odontoglossum cristatum), an interesting hybrid having dull red flowers with a yellow crest, a well-flowered Cynorchis × kewensis, Renanthera Imschootiana, Dendrobium velutinum, two good Pleurothallis Roezlii, Cymbidium insigne, Oncidium splendidum, Cœlogyne sparsa, some richly-coloured Odontoglossum × armainvillierense, and many others. A First-class Certificate was given to Odontoglossum × splendens (eximium × Wilckeanum), a remarkably fine hybrid, having flowers of excellent shape and substance, the sepals and petals showing blended tints of purple and chestnut red, with a little cream white at the base and margin, and the lip white, with numerous purple blotches at the base and round the yellow crest. An Award of Merit was given to O. × Black Prince (Lambeauianum × Rolfeæ) having deep vinous-purple flowers with a narrow whitish margin to the sepals and petals.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including a fine lot of Phalænopsis Schilleriana, Cattleya × Enid, C. × Capri, Læliocattleya bella, L.-c. callistoglossa, and various other hybrids of this group. Brassocatlælia Winifred (B.-l. Gratrixiæ × L.-c. Myra), Nanodes Medusæ, Vanda Watsoni, Cœlogyne sparsa, and numerous Odontoglossums, with many other interesting things. Awards of Merit were given to Disa lacera multifida, a pretty South African species with blue flowers, and to Odontoglossom × Ceres (Rossii × Rolfeæ), a very striking thing, having well shaped white sepals, margined with primrose yellow, and regularly spotted with claret red, the petals similar but only blotched on the lower half, and the broad, undulate lip white, with a lemon yellow crest and a few purple markings round it.

Messrs. Stuart Low & Co., Bush Hill Park, also received a Silver Flora Medal for a large and handsome group, including a very fine lot of Dendrobiums, some good forms of Cattleya Trianæ, two plants of C. ×

Suzanne Hye de Crom, Oncidium varicosum, Bush Hill var., a bright yellow form with a deep red-brown blotch at the base of the lip, and other Oncidiums, Lælia Jongheana, Læliocattleya callistoglossa, L.-c. Cappei, Cypripedium × Leeanum Lavertonianum, and numerous others.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group, including Dendrobium × Ainsworthii splendidissimum, D. × Rubens grandiflorum, D. nobile virginale, and other fine forms, Cypripedium × aureum virginale and many others, Odontoglossums, a fine plant of Cirrhopetalum picturatum, Aërides Vandarum, some fine clumps of Sophronitis grandiflora, &c., the whole being very effectively arranged.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a choice group, including Cattleya Trianæ cœrulea and C. T. albo-cœrulea, two charming white forms with some violet markings on the lip, a handsome Læliocattleya callistoglossa, Odontoglossum crispum Raymond Crawshay, O. c. Jeanette, Cypripedium × aureum Surprise, and several pretty white forms of Brassocattleya langleyensis.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group, including Lælia anceps Fascinator, a handsome coloured form, and a good lot of white varieties, Cypripedium × memoria Jerninghamiæ, which is said to have originated at Cooksbridge, some good forms of Odontoglossum crispum, O. Edwardii, Epiphronitis Veitchii, Cymbidium insigne with two fine spikes, C. × Veitchii concolor, and other good things.

Messrs. Mansell & Hatcher, Rawdon, Yorks, also received a Silver Banksian Medal for a good group, including some very fine forms of Dendrobium infundibulum, the pretty little D. æmulum, D. × chessingtonense, D. × Artemis and other hybrids, Vanda Watsoni, Brassocattleya Maroni, some good Cattleya Trianæ, the handsome Bollea Lalindei, Cypripedium × aureum Hyeanum, with a fine hybrid from C. villosum × Mrs. Wm. Mostyn, having a very dark base to the dorsal sepal, a number of good Odontoglossums, &c.

Messrs. Wm. Bull & Sons, Chelsea, sent the pretty Odontioda chelseiensis.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a large and handsomely blotched Odontoglossum crispum, and a series of fine hybrids.

Messrs. Heath & Sons, Cheltenham, also sent a selection of Orchids.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

There was a very fine show of plants at the meeting of this Society, held on February 3rd, at the Coal Exchange, Manchester. The Committee present were: Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward,

Arthur, Warburton, Keeling, Holmes, Parker, Cypher, and Weathers (Hon. Sec.).

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), received the Society's Gold Medal for an exceptionally fine group of Cypripediums, which covered nearly the whole of one side of the central staging. The seedling C. insigne King Hare (i. King Edward VII. × i. Harefield Hall var.) gained an Award of Merit. The group included many fine and choice varieties, namely C. insigne Monarch, C. i. Luciani, C. i. Chantini Lindeni, C. i. Dormanianum, C. i. Berryanum, the rare albino C. Charlesworthii Bromilowianum, bearing two flowers, C. × aureum Hyeanum, C. × a. Pomone, C. × Para in fine form, C. × fulshawense, C. × Alcibiades superbum, C. × Thalia giganteum, C. × Mons. de Curte, Rann Lea var., C. × Euryades, Sir Trevor Lawrence's var., C. × Lord Wolmer, C. × chrysotoxum var. Victor, and many other fine varieties.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), staged a well-grown and flowered group of Cypripediums, many of the plants bearing from six to twelve fine flowers, the best being C. × Archimedes, C. × Thompsoni, C. × Euryades, New Hall Hey var., C. × E. splendens, C. × aureum Hyeanum, C. a. × Œdippe, C. × a. virginale magnificum, specially fine, and C. × nitens magnificum. A special Vote of Thanks was awarded.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), gained a Silver-gilt Medal for a group of Odontoglossums. O. crispum F. K. Sander, a very heavily blotched form, and O. × Dreadnought each gained a First-class Certificate, and Cypripedium × Amesii, Warburton's var., an Award of Merit. Cypripedium × Hyndeanum, having six strong growths and carrying two flowers, received a Cultural Certificate. In the group I noticed Odontoglossum crispum White Queen, O. c. Perfection, O. c. quotiens, O. × Dr. Walker, and O. × Princess.

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a fine group of miscellaneous plants, the Cattleya portion receiving a Silver Medal and the general group a Silver-gilt Medal. Many rare botanical varieties were ncluded, being backed by well-flowered plants of Lælia anceps Schrœderiana, Odontoglossums, Dendrobiums, Lycastes. I noted many fine varieties of Cattleya Trianæ, Lycaste Skinneri armeniaca, &c. Læliocattleya × Eva (C. Gaskelliana × L. tenebrosa) received an Award of Merit, and Cirrhopetalum Mastersianum, Cynorchis Lowiana and Trias picta all gained First-class Botanical Certificates.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), gained two Silver Medals for a divided group, which included Odontoglossums in variety, and many good Cattleyas and Cypripediums. Cattleya Percivaliana, Moorfield var., and a new hybrid called Trilumna Gouldiana (Trichopilia suavis × Pilumna nobilis) both gained Awards of Merit.

G. S. Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), sent a group of choice Cypripediums, &c., which gained a Silver Medal. I noted C. × Euryades splendens, C. × E. New Hall Hey var., C. × Thompsoni, C. × Olivia, C. × Earl of Tankerville, C. × Sallieri, Under Fell var., Cœlogyne sparsa, Dendrobium × xanthrocentron, and many others, the whole being arranged very tastefully.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a good group of Cattleyas, Lælias, &c., including many choice forms of Cattleya Trianæ, C. T. J. McCartney gaining an Award of Merit, many well-flowered Lælia anceps Schrœderiana, L. a. Sanderiana, and a specially fine Cypripedium insigne Dormanianum (Silver Medal).

Norman Galloway, Esq., Great Horton, Bradford, gained a Silver Medal for a group of Cypripediums, &c., which included C. × Leeanum Lavertonianum, C. × Amy Moore, Vanda Amesiana, and others.

Elijah Ashworth, Esq., Harefield Hall (gr. Mr. Holbrook), gained an Award of Merit for Cattleya Trianæ var. Ernest Ashworth.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Cattleya × Enid var. Holdenii and Cypripedium × Actæus var. Archie Neill, both receiving Awards of Merit.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed Cypripedium × Sanactæus, Craven's var. (Award of Merit).

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), gained an Award of Merit for Cypripedium × Maurice.

Messrs. Jas. & A. A. McBean, Cooksbridge, sent a nice mixed group, consisting of strong plants of Odontoglossum crispum, O. Pescatorei, Lælia anceps in variety, Cypripedium × aureum virginale, &c. (Silver Medal).

Messrs. Cypher & Sons, Cheltenham, staged a fine group of well-grown Cypripediums, including C. × aureum in variety, C. × nitens F. F. Smith, very good, C. × Beeckmanii, C. Thompsoni, C. × Minos Youngii, and many others (Silver Medal).

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Medal for a small but choice group, in which I noted Cypripedium × aureum Surprise, C. × a. Hyeanum, C. × a. Œdippe, C. × Beeckmanii, C. × fulshawense, C. × Maudiæ, Brassocattleya langleyensis, and Cattleya Trianæ alba.

Messrs. Keeling and Sons, Westgate Hill, Bradford, sent a group of miscellaneous plants, including Cypripedium × Leeanum Clinkaberryanum, Dendrobium Kingianum, Oncidium splendidum, &c.

Mr. W. Shackleton, Great Horton, Bradford, sent Miltonia × Bleuana grandiflora, Cypripedium aureum virginale, a fine Odontoglossum crispum, and a distinct O. Rossii.

Mr. Robson, Altrincham, sent Cypripedium × Euryades, New Hall Hey var., and a good blotched Odontoglossum.

Messrs. Sander & Sons, the Liverpool Orchid Co., and Mr. J. Birchenall each received a Vote of Thanks for a small exhibit.

At the meeting held on February 17th the following members of the Committee sat:—Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Cowan, Ward, Warburton, Shill, Parker, Keeling, Holmes, Ashton, Cypher, and Weathers (Hon. Sec.).

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a very choice group of Odontoglossums which gained a Silver-gilt Medal. O. crispum xanthotes Warburtonæ, which received a First-class Certificate and a Gold Medal, is the finest O. c. xanthotes yet seen, the pure white sepals and petals, and a small lemon-coloured blotch on the lip, combined with large size and excellent shape, going to make a most perfect white crispum. O × ardentissimum var. Sultan, a flower with large even blotches of rich dark maroon, also gained a First-class Certificate. O. crispum Grand Duke and O. c. Gloria Mundi both gained Awards of Merit. Included in the group were also O. c. F. K. Sander, O. c. quotiens, O. × Lambeauianum var. augustum, &c.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a very effective and well-grown lot of Odontoglossums, including many choice hybrids, backed with Dendrobium Wardianum. I noted a well-flowered Odontioda heatonensis carrying six spikes, a fine Odontoglossum spectabile, and another very distinct unnamed hybrid of rich yellow ground colour with small speckled spotting (Silver-gilt Medal). O. × Mrs. Whitmoyer received an Award of Merit.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a bright group of Cattleyas, Lælias, &c. Læliocattleya callistoglossa var. W. Holmes, Cattleya Trianæ var. Prince Henry, and C. T. Castle Hill var. all received Awards of Merit. The group included Brassolælia × Helen, Lælia anceps Schrœderiana, and a strong plant of Cattleya Percivaliana (Silver-gilt Medal).

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a miscellaneous group, which gained a Silver Medal. Masdevallia triangularis received a First-class Botanical Certificate, and several other botanical specimens were recognised. I noted Lycaste × Mary Gratrix, several fine Cattleya Trianæ, Læliocattleya Nysa and L.-c. Haroldiana.

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), gained a Silver Medal for a choice group of Cypripediums, including many choice varieties mentioned at the last meeting. I noted a very fine C. × Beeckmanii, C. × Thalia var. Mrs. Francis Wellesley, C. × aureum Pomone, C. × Euryades, New Hall Hey var., &c. C. × Leeanum var. Excelsior gained an Award of Merit.

Richard Ashworth, Esq., Newchurch (gr. Mr. Gilden), sent a nice group of mixed plants, which received a Silver Medal. I noted Cattleya intermedia alba, C. Warneri alba, C. Trianæ alba, Cypripedium × aureum Surprise, C. × a. Œdippe, C. × Minos Youngii, and Odontoglossums in variety.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a mixed lot of plants, which were awarded a Silver Medal. Cattleya Trianæ Moorfield var., a dark form, gained an Award of Merit. Odontoglossums in variety, Phalænopsis Schilleriana and P. amabilis, with strong plants of Calanthe Regnieri and a few Cypripediums completed the group.

N. Galloway, Esq., Great Horton, Bradford, gained a Bronze Medal for a small group of Cypripediums.

Samuel Gratrix, Esq., Whalley Range (gr. Mr. Shill), received an Award of Merit for Dendrobium × Melpomene, West Point var.

Dr. Hodgkinson, The Grange, Wilmslow (gr. Mr. Woore), sent Odontoglossum crispum Lindenii and plants of O. spectabile (Vote of Thanks).

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent Cypripedium × Wottoni and a pretty seedling from C. Chamberlainianum × bellatulum.

J. Rutherford, Esq., Blackburn (gr. Mr. Lupton), sent Cypripedium × Rossetti and Lycaste Skinneri alba.

Messrs. Cypher & Sons, Cheltenham, staged a fine group, which gained a Silver Medal. I noted a fine plant of Cypripedium × aureum virginale, carrying six flowers, C. × chrysotoxum var. Victor, C. × Beeckmanii, Dendrobium × Cybele, Brassocattleya × Thorntoni, and several bright pans of Sophronitis grandiflora.

Messrs. Keeling & Sons, Bradford, staged a mixed group, which included Dendrobium nobile Ballianum, Cypripedium × aureum Surprise, and C. × beechense superbum, C. × Charlesianum var. Becktoniæ gained an Award of Merit.

Messrs. Sander & Sons, St. Albans, received a Vote of Thanks for a small group, including Cypripedium × Euryades var. Lion, C. × Tracyanum, a fine Odontoglossum Wilckeanum, Sander's var., O. × Vuylstekei, &c.

Mr. J. Robson, Altrincham, sent Cypripedium × Euryades New Hall Hey var., C. × E. King Edward VII., a pretty Lycaste Skinneri var. Queen Alexandra, &c. (Vote of Thanks).

Messrs. Muirhead & Wilcox, Ashton-on-Mersey, sent Odontoglossum × waltonense and several good but unnamed hybrid Odontoglossums.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged Lycaste × Mary Gratrix, Cypripedium × Beeckmanii, C. × aureum Hyeanum, and a specially fine form of C. × a. Surprise.

Messrs. Wm. Bull & Sons, Chelsea, sent blotched and spotted forms of Odontoglossum crispum.

Messrs. Stuart Low & Co., Enfield, sent two good plants of Cattleya Trianæ alba.

Mr. W. Shackleton, Great Horton, received a Vote of Thanks for a small exhibit.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed the fine Cypripedium × Alcibiades illustre. H. THORP.

ORCHIDS AT KEW.

SEVERAL very interesting Orchids are now flowering at Kew, and among them the rare and very striking Lissochilus Horsfallii, which carries a fine spike six feet high, bearing a large number of green and purple flowers. Stauropsis gigantea, now seldom met with, is also bearing a fine spike. Near by is a nice group of Phalænopsis Schilleriana, which this year has been fortunate enough to escape the fogs, which are usually so disastrous to it. In the Cool house a plant of the handsome Cymbidium grandiflorum is carrying a fine spike, with every flower perfectly expanded. This species has a reputation of sometimes dropping its flowers before expansion, but the remedy lies in correct cultural treatment, and it is generally agreed that it requires a light position in the Cool house. The spikes develop very slowly, and any attempt to hurry them seems to end in disaster.

There are two plants of the striking Pleurothallis Roezlii, carrying an aggregate of eighteen racemes. Close by is a fine Aërides Vandarum on a raft, bearing nine inflorescences, and two fine specimens of the chaste Masdevallia tovarensis, the best with 45 inflorescences, Masdevallia Schrœderiana, × Courtauldiana, Mooreana, × Hincksiana, triangularis and several others are also in bloom. Cynorchis compacta is a charming little white-flowered species from Natal, which always flowers freely in the spring, and five nice clumps are now in bloom. The orange-coloured Odontoglossum retusum is one of the most distinct of numerous Odontoglossums now in flower.

There is a nice show of bloom in the Cattleya house, where plants of Pleione yunnanensis and P. tricolor in hanging pans are now very attractive. A plant of the rare Cœlia macrostachya is also in bloom, and Maxillaria ochroleuca is flowering freely.

In the Warm house Dendrobiums are making a bright display, and four specimens of Dendrobium glumaceum are covered with graceful spikes. Pholidota ventricosa, Pelexia maculata, and Lockhartia Wiegeltii are interesting rarities, of which a long list might be compiled. Both the showy and botanical species are well represented, and a good number of hybrids are also in bloom.

ORCHIDS IN SEASON.

A FLOWER of the remarkable Odontoglossum crispum xanthotes Warburtonæ, to which a First-class Certificate and a Gold Medal were given at the meeting of the Manchester Orchid Society held on February 17th last, is sent from the collection of A. Warburton, Esq., Vine House, Haslingden, by Mr. Dalgleish. The petals are 1½ inches across, and have an expanse of 4 inches, while the sepals are also very broad, giving the flower an excellent shape. The colour is pure white, with a large yellow disc to the lip, and two orange blotches in front. The column wings also bear several orange-coloured spots. There is not a trace of brown anywhere. It is an altogether exceptional variety.

A fine flower, believed to be a hybrid from Paphiopedilum insigne × Mastersianum, is sent from the collection of L. C. R. Thring, Esq., Dunstable. It has much of the general shape and character of the latter, with broad, nearly horizontal petals, which are brown, with many dark spots and a very broad white margin. It is a bold and very striking hybrid, and is a form of P. × albanense (*Orchid Stud-Book*, p. 130).

Cattleya Trianæ var. Lottie Müller is a remarkable variety from the collection of G. H. Müller, Esq., Huis Sandhage, Haag, Holland, which we have seen through the kindness of M. Duchesne Lanthoine, of Watermael, Brussels. The sepals and petals have a peculiar slaty-blue shade, and the front lobe and sides of the lip are purple-blue, with a white throat. The absence of the usual yellow disc is remarkable. The plant is a very strong one, with four large old bulbs, but the first one produced at home is only half as large, and bears two leaves and one tiny flower, with very broad segments. It promises to develop into a very fine thing.

A pretty seedling form of Odontoglossum crispum is sent from the collection of R. G. Thwaites, Esq., of Streatham (gr. Mr. Black). It is said to be from the same batch as the one figured at page 337 of our thirteenth volume, together with its two parents, O. c. Bonnyanum and another spotted form. This flower has the round shape of the former, but there is a cluster of spots about the middle of each segment, in which respect it is most like the last mentioned parent.

A handsome Læliocattleya is sent from the collection of E. F. Clark, Esq., Chamonix, Teignmouth, which was purchased several years ago from Messrs. Charlesworth & Co., as a seedling from L.-c. elegans × C. Dowiana aurea. It is well known that L.-c. elegans and L. × Schilleriana have often been confused, and we believe that the flower sent was derived from the latter, which it very closely resembles, except in having rosy lilac sepals and petals. We take it to be a form of L.-c. Fournieræ, for we believe that the same confusion arose in the case of this hybrid, though it was not detected

when the *Orchid Stud-Book* was compiled. A flower of L.-c. Gamma (L. Jongheana × L.-c. Ernestii) is most like L. Jongheana in shape, but with light buff sepals and petals, and a rather darker yellow lip edged with pink. Two flowers of L.-c. Ursula (L. crispa × L.-c. Leeana), described at page 157 of our fifteenth volume, are also sent, one having a much crisped lip and the other more like Cattleya Loddigesii in shape.

A flower and leaf of a richly coloured seedling Paphiopedilum is sent from the collection of M. G. Poupardin, Ferriers en Brie, Seine et Marne, France. P. bellatulum was one parent, but the other is doubtful. We think it is a form of P. × Lawrebel, for the handsomely marbled foliage is altogether suggestive of P. Lawrenceanum.

THE HYBRIDIST.

SOPHROCATTLEYA ROUPELLIANA.—A pretty hybrid raised in the collection of R. G. Thwaites, Esq., Streatham Hill, from Sophronitis grandiflora × Cattleya × F. W. Wigan. The flower at present has an expanse of four inches, and the segments are fairly intermediate in shape, while the colour may be described as dark rose-purple. The lip is 1½ inches long and the convex, recurved front lobe is deep purple in colour, and the disc and side lobes deep yellow, the latter with radiating deep purple lines and margin. C. × F. W. Wigan is a hybrid from C. Schilleriana × Dowiana.

BRASSOCATTLEYA × WELLESLEYI.—A very beautiful hybrid from the collection of Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), raised from Cattleya Mossiæ Wageneri × Brassavola glauca. It received an Award of Merit from the R.H.S. on February 8th under the name of Brassocattleya Wellesleyæ, but as that name is already appropriated for the hybrid between C. Lueddemanniana and B. Digbyana the name is changed as above. It is a very beautiful thing, most like a greatly enlarged edition of B. glauca, with much broader petals, and the colour white, with a yellow blotch in the throat. Its parentage can be very clearly traced.

ODONTIODA CUPREA.—An interesting Odontioda was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on February 22nd last, of which the inflorescence has been kindly sent. It was derived from Cochlioda Nœtzliana and Odontoglossum cristatum, and, as usual, shows most of the character of the Cochlioda parent, but the flowers are larger, and the sepals and petals have rather more of the Odontoglossum shape. The lip is very strongly reflexed, and its claw is half adnate to the column. The colour may be described as deep copper red, and the limb of the lip rather darker, with a prominent yellow crest. The limb is oblong in front and broadly rounded behind. The column wings are large, square, and nearly entire, these and the apex of the column being white.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held in the Horticultural Hall, Vincent Square, Westminster, during March, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. On the latter date a second Masters' Memorial Lecture will be given at 3 p.m., by Mr. A. D. Hall, M.A., F.R.S., on the Adaptation of the Plant to the Soil.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on March 3rd and 17th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for April 7th.

BRASSOCATTLEYA CLIFTONI.—Messrs. Charlesworth write to point out that the handsome hybrid figured at page 48 of our last issue is the original Brassocattleya Cliftoni, which received a First-class Certificate from the R.H.S. on December 8th, 1908. The photograph was taken from this original plant. The variety magnifica received a First-class Certificate from the R.H.S. on March 9th, 1909, and passed into the collection of F. M. Ogilvie, Esq., The Shrubbery, Oxford.

Mrs. Ross, of Florence, writes respecting the hybrid between Paphiopedilum hirsutissimum noted at page 62 of our last issue, and proposing to call it P. × Fritz von Hochberg, after Prince Pless's brother.

A flower of the beautiful albino, Paphiopedilum Charlesworthii Bromilowianum, is sent from the collection of H. J. Bromilow, Esq., Rann Lea, Rainhill, Lancs., by Mr. Morgan. The dorsal sepal is pure white, somewhat reflexed at the sides, while the usual brown markings have vanished from the petals and lip.

CERCLE DES ORCHIDOPHILES BELGES.

THE Cercle des Orchidophiles Belges, reconstituted in 1909, has held on the 20th of February, its first General Meeting, at the Botanical Gardens in Brussels. Fellows assisted in great number, and the Committee was represented by M. le Comte Jos. de Hemptinne (in the chair), M. Ch. Dietrich, H. Verdonck, M. Theodore Pauwels, and M. E. Praet. Various subjects were attended to, among them the unification of the rules for the monthly horticultural meetings at Ghent, Brussels, Bruges, Tournay; the participation of the Cercle des Orchidophiles Belges at the future National and International Exhibitions; also the participation of the Cercle at the Congrès International d'Horticulture, which will be held during the World's Fair at Brussels, one of the main objects of the Cercle being the propagation of Orchid culture. The members of the Committee who undertook the task to reconstitute the Society deserve the congratulation of all Orchid lovers.

ORCHID PORTRAITS.

ANGULOA CLIFTONI.—*Journ. Hort.*, 1910, i. p. 117, with fig.

BRASSOCATTLEYA WELLESLEYÆ.—*Gard. Mag.*, 1910, p. 123, with fig.

BULBOPHYLLUM BINNENDIJKII.—*Gard. Chron.*, 1910, i. p. 84, fig. 46.

CATTLEYA PERCIVALIANA.—*Amer. Gard. Chron.*, 1910, p. 90, with fig.

CATTLEYA PERCIVALIANA, WESTONBIRT VAR.—*Journ. Hort.*, 1910, i. p. 161, with fig.

CŒLOGYNE MOOREANA, SANDER.—*Bot. Mag.*, t. 8297.

CYPRIPEDIUM × CYMATODES VAR BEECHENSE.——*Journ. Hort.*, 1910, i. p. 95, with fig.

CYPRIPEDIUM INSIGNE, HAREFIELD HALL VAR.—*Amer Gard. Chron.*, 1910, p. 92, with fig.

CYPRIPEDIUM × LORD WOLMER.—*Gard. Mag.*, 1910, p. 107, with fig.

CYPRIPEDIUM × MEMNON.—*Journ. Hort.*, 1910, i. p. 139, with fig.

DENDROBIUM × DUCHESS OF ALBANY.—*Gard Chron.*, 1910, i. pp. 138, 139, fig. 61.

DENDROBIUM × MRS. FENTON HORTON.—*Gard. Mag.* 1910, p. 176, with fig.

LYCASTE SKINNERI.—*Amer. Gard. Chron.*, 1910, p. 92, with fig.

ODONTOGLOSSUM GRANDE.—*Amer. Gard. Chron.*, 1910, p. 92, with fig.

ONCIDIUM VARICOSUM ROGERSII.—*Amer. Gard. Chron.*, 1910, p. 91, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

H.G.A.—1, Epidendrum odoratissimum ; 2, Odontoglossum × Adrianæ ; 3, Catasetum Trulla ; 4, a small Paphiopedilum × Leeanum.

H.G. The note, with several others, is unavoidably postponed till next month. Photographs received with thanks.—H.G.

ERRATA.

Messrs. Stuart Low & Co. write to say that the plant noted at page 51 as Cypripedium × Alcibiades magnificum was C. × A. superbum. The former is in the collection of Lt.-Col. G. L. Holford.

The plant noted at page 40 of our last issue as Pleurothallis crinifera should have been P. crinita. The name was correctly given on the wrapper.

By some accident six words were omitted from the note on Odontoglossum distans (vol. xvii. p. 335, line 5). The phrase should read "a loosely-branched panicle, about 2½ feet long, the flowers measuring," &c.

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The Editor invites communications on interesting subjects (which should be written on one side of the paper only), also portraits, &c., of rarities.

Advertisements and late news should be received not later than the 24th of the month.

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THE ORCHID REVIEW.

VOL. XVIII.] *APRIL*, 1910. [No. 208.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 36.)

WE now come to the great division of the Order which is largely characterised by its epiphytic habit and the waxy nature of the pollen masses, two entirely new characters, and in this we have to retrace our steps practically to the point of contact with the Arethuseæ, for there are certain genera in which it is not always easy to say whether the pollen is powdery or waxy, and the epiphytic habit is not by any means universal. In fact we find a steady progression from a lower to a more highly specialised type, as in the divisions previously considered. Orchids possessing waxy pollen masses are for the most part confined to tropical and subtropical regions, and they are divided by Bentham into two great tribes, Epidendreæ and Vandeæ, the latter characterised by having the pollinia attached to a distinct stipes and gland, which is not present in the former. The difference is generally obvious, though in a few cases the distinction is not easy to make out without careful examination.

The rostellum of the Vandeæ is a highly specialised structure. We have already seen how the rostellum originally arose by a modification of the median stigma into a secreting organ, for the purpose of attaching the pollinia to the bodies of the fertilising insects. In the Vandeæ the specialization is carried further, and Darwin has shown that during an early period of growth a line of separation is gradually formed, at first appearing as a zone of hyaline tissue, which sets free a portion of the rostellum, together with the viscid disc and the pollen masses, when an insect visits the flower. This separable portion of the rostellum, which connects the pollen masses with the viscus or gland, is called the stipes. It forms a new character, and its presence constitutes the essential character of the Vandeæ. The difference is fundamental, yet the difficulties of observation have left the true position of a few genera in doubt. Calanthe, for example, is placed by Darwin in the Vandeæ, but by Bentham in Epidendreæ, the latter pointing out that the viscus, which after dehiscence connects the points or caudicles of the pollen masses and hardens into a disc-like gland, is not a scale or lamina detaching itself from the upper surface of the rostellum, as in true Vandeæ, and its affinities in other respects are with the Epidendreæ.

Some new characters appear among the Epidendreæ. One of them is that of having articulated leaves, which is largely associated with the epiphytic habit, and Pfitzer suggests that the dejection of the lamina of the leaf probably arose as a means of diminishing the evaporating surface in times of drought. It is not found in the Diandræ, Neottieæ or Ophrydeæ; and is not universal among the Epidendreæ. The production of secondary stems from the rhizome, and the thickening of the internodes into variously shaped pseudo-bulbs, as well as the modified structure seen in the aërial roots, by which they cling to the bark of trees and become covered with a protecting sheath of velamen, are necessarily adaptations to fit them for an epiphytic mode of existence. The production of additional partitions in the anther, by which the pollen-masses are sometimes divided into eight more or less distinct lobes is possibly connected with the economy of fertilisation, but has apparently arisen independently in different groups, for some closely allied genera differ in the number of the pollen masses, as Cattleya and Lælia, Octomeria and Pleurothallis, &c.

Another very curious character is the production of a distinct foot to the column, from the apex of which the lip arises, and to the sides of which the lateral sepals are often affixed, producing what is called a mentum or chin, as in Dendrobium. This modification is also connected with the economy of fertilisation, and probably bears a definite relation to the fertilising insect. Just as the column is an elongation of the disc of the flower, and its production is correlated with a reduction of the filament of the anther, so the foot is a further unilateral extension of the disc, which carries up the lip with it, and frequently the lateral sepals also. The foot varies greatly in detail, sometimes even in the same group, and probably arose independently in different groups, being found also in some of the Vandeæ. It is often found in combination with an articulated or mobile lip.

The Epidendreæ, as now understood, form a very large tribe, and we may now indicate a few of its sub-divisions and some of the principal genera. Anything like a complete account would require much more space than can be spared, and many of the details are not yet worked out. The group was divided by Bentham into nine subtribes, but without any attempt to indicate their progressive development. It is not easy to fix the precise starting point of the Epidendreæ, and some of the early types are not improbably lost. Both Bletilla and Thunia were considered by Reichenbach as belonging to Arethuseæ, but they had been previously included in Bletia and Phaius respectively, to which they were returned by Bentham. The genus Elleanthus, which is not often seen in cultivation, is placed by Bentham in the subtribe Cœlogyneæ, while Pfitzer puts it near to Sobralia, and although the system of the latter author is largely based upon vegetative characters, the position in this case seems to indicate better the affinity of

the plant. These facts indicate an affinity with some of the early genera of Neottieæ, from which the Epidendreæ probably arose as a diverging branch, afterwards becoming specialised in various directions.

The subtribe Malaxeæ (now including at least part of Liparieæ), possesses a comparatively simple structure. The flowers are usually small or minute, borne in terminal spikes or racemes; the lip adnate to the base of the column without the intervention of a foot; the anther erect or inclined; and the pollen masses four in number, waxy, and free or held together by a small viscus. A good many of the species are terrestrial, and have membranous unarticulated leaves, for example, Malaxis, Microstylis, and the section Mollifoliæ of Liparis, though the section Coriifoliæ of the latter has articulated leaves, also the genus Oberonia, which has become completely epiphytic, and has equitant leaves, while the lip in many cases is curiously lobed or toothed. Microstylis and Liparis are widely diffused in both hemispheres, the latter reaching temperate regions (with one British species), but Oberonia is absent from America, and is only common in Tropical Asia. Platyclinis was formerly referred here, but is now united with Dendrochilum, and transferred to Cœlogyneæ. Two or three other genera also referred here may be passed over, as their position is not beyond dispute.

R. A. ROLFE.

(To be continued.)

CALLISTA AMABILIS.

THE rediscovery of a long-lost Orchid has just been announced in the *Gardeners' Chronicle*, and has led to a curious discussion. An Orchid from Cochin China was briefly described by Loureiro as long ago as 1790 (*Fl. Cochinch.*, p. 519), but has remained practically unidentified to this day, though an imperfect specimen is preserved at the Natural History Museum, South Kensington. Dr. Kränzlin now (*Gard. Chron.*, 1909, ii. p. 354) announces the rediscovery of the plant, having received from Dr. H. Goldschmidt, Essen-Ruhr, Germany, the upper part of a stem, bearing one flower, and a photograph which he considers to be identical. It is said to have been found near Tourane, on the East Coast of Annam. It may be remembered that the late Dr. Otto Kuntze transferred all the species of Dendrobium to Callista on the ground of priority, but Kränzlin now regards Callista as distinct. Mr. James O'Brien, however, has no doubt that it is a Dendrobium, which under the Vienna Rules will have to be called D. amabile (*l.c.*, p. 393). In a further note Kränzlin (*l.c.*, p. 431) insists that the plant is not a Dendrobium as defined by Lindley, and by Bentham and Hooker, to which O'Brien replies (*l.c.*, 1910, i. p. 19) that it is either Dendrobium thyrsiflorum or some very near ally, while Dr. Goldschmidt's plant is probably D. aduncum. Hook. f. (D. hercoglossum, Rchb. f.). Then

Dr. Udo Dammer wrote a long note (*l.c.*, p. 34), remarking that the two plants under discussion are quite distinct, though expressing the opinion that Dr. Goldschmidt's plant is not the D. aduncum figured in the *Botanical Magazine* (t. 7684).

Dr. Goldschmidt has since sent me two photographs, one showing his entire plant, the other part of a stem with three twin-flowered racemes, and they certainly represent a species of the D. aduncum group. Three species of this group have been described, D. aduncum, Wall., D. hercoglossum, Rchb. f., and D. linguella, Rchb. f., but until flowers are available the identity of Dr. Goldschmidt's plant remains uncertain. One thing is clear, that it is not at all like Callista amabilis, Lour. I have long known this as a species of the D. thyrsiflorum group, but have failed to identify it. The flowers are in bad condition, but the short racemes and long narrow bracts seem distinct from any known species, and I suspect that until further materials are sent from Cochin China, the identity of the plant will remain uncertain. The Orchids of Cochin China are still very imperfectly known, and an importation from the district whence Loureiro's plants were obtained would be very interesting, and probably yield some novelties. It is bordering on Annam, whence so many novelties have recently been obtained.

R. A. ROLFE.

DENDROBIUM SIGNATUM.

WHAT is Dendrobium signatum? A yellow-flowered Dendrobium is in cultivation under this name, and has been used for hybridising, but, curiously enough, it does not appear to be the plant originally described by Reichenbach. A coloured drawing of the latter was made by Mr. Day (*Orch. Draw.*, xl. t. 71) on February 16th, 1884, and is accompanied by the following note: "Drawn at Mr. Wm. Bull's, being a new species from Siam of his own importation, and flowering now for the first time. The flowers were wanted for the Prof., so I could not make any sketch of column, &c. Although the flowers recall D. Bensoniæ, the growths are more like D. tortile, for which Mr. Bull took it on arrival, and sold the entire box at Stevens' for a mere trifle." It was described by Reichenbach about three weeks later (*Gard. Chron.*, 1884, i. p. 306), the author describing it as a good deal like D. Bensoniæ, and remarking, "It is sulphur coloured, with a light longitudinal line at the base, on the situation where in some species velvet is to be seen. The disc is adorned by a broad transverse radiating brown blotch, and on each side of the basal part there are four similar brown lines, going out at nearly right angles, and, running, of course, nearly parallel. . . . The circumference of the lip may best be compared to that of Dendrobium

nobile. For this neat novelty I have to thank Mr. W. Bull, who introduced it from Siam." Mr. Day's drawing shows a rather short stout stem, with a two-flowered raceme, and flowers much resembling D. Bensoniæ in colour, but the petals narrower and not so flat.

In March, 1889, Messrs. Veitch sent to Kew a flower which had been received as D. signatum, which had clear deep shining canary-yellow flowers, and the disc of the lip puberulous, with a pair of small purple-brown blotches (the colour being carefully recorded at the time), and in February of the following year a named flower also came from Messrs. Seeger & Tropp. In December, 1889, M. A. Regnier sent the same thing for determination, with the record that it came from the Philippines, but just previously he had received some Orchids from Siam, which I then took to be the real habitat. This is the plant still cultivated as D. signatum, and the parent of the various hybrids credited to it. How it got the name is not clear, but I have a suspicion that all the plants sold at Stevens as D. tortile were not like that figured by Mr. Day, and that this yellow form was amongst them. The name would easily be applied to them when D. signatum was named. In April, 1888, a dried flower was received from Messrs. Hugh Low & Co., as believed to be D. signatum, Rchb. f., and as the colour appears to have been white, and a trace of purple remains on the disc, it may be the original plant.

In 1887, a closely allied species was described, namely D. Friedricksianum, Rchb. f. (*Gard. Chron.*, 1887, i. p. 648). It had been sent from Siam by Roebelen, and was dedicated by request to an Orchid lover of Bangkok. It had yellow flowers, with a pair of reddish blotches on the disc of the lip. Reichenbach at first hesitated about its distinctness from D. signatum, and spoke of the latter as one-flowered (as he had done when the species was originally described), which suggests that only one of the two flowers drawn by Mr. Day was sent to him. Flowers of D. Friedricksianum were sent to Kew by Mr. J. O'Brien, in March, 1891, and these were identical with unnamed flowers sent by Roebelen from Siam through Messrs. Charlesworth, Shuttleworth & Co., in December, 1889. In 1882 a dried specimen of a similar yellow Dendrobium was sent to Kew by Murton, as obtained 20 miles inland from Chantanboon, and this was afterwards regarded as D. Friedricksianum. The question remains whether these yellow Dendrobiums do not belong to a single somewhat variable species, especially as flowers of a much finer form were sent as D. signatum by Messrs. Sander in March, 1891, and of which the habitat was given as Burma.

There is thus a very interesting question to be cleared up, and we hope some correspondent in Siam may be able to throw further light upon it. It would also be interesting to know more about the original form described by Reichenbach, and figured by Mr. Day.

R. A. R.

THE AMATEUR'S COLLECTION.

THE Cool house is now brightening up considerably, and a number of Odontoglossums are in flower, particularly O. Pescatorei, various forms of O. crispum, and the bright yellow and brown O. triumphans, which looks unusually brilliant among a number of its paler relations. O. Pescatorei is a particularly charming thing when well grown, for under such conditions the flowers are borne in ample panicles, and the effect is very telling. Some of the forms are of the purest white, brightened up with a few clear purple markings on the base of the lip, while others are prettily tinged with rose. Spotted forms are not numerous, but a few very attractive ones are to be met with. It grows in company with O. triumphans, and the natural hybrid O. × excellens, as well as O. triumphans itself, sometimes flowers among batches of imported plants. Of course there is not the same element of uncertainty as to what will appear as in growing batches of imported O. crispum, which presents a range of variation that is quite bewildering, apart from the recognised natural hybrids, some of which are almost certain to put in an appearance. These include O. × Andersonianum, × Adrianæ, × Wilckeanum, and × Coradinei, and all are worth growing for their variety and interest, as well as a plant or two of the parents, O. gloriosum, Hunnewellianum, luteopurpureum, and Lindleyanum. Various other species are flowering well, as O. Edwardii, sceptrum, and the charming little O. Rossii, which succeeds best when grown in deep pans suspended from the roof.

The hybrids of garden origin are now becoming a very numerous class, and some of them are quite within the reach of the amateur grower. The hybrids of O. Harryanum form almost a class of themselves, and the forms of O. × spectabile and O. × Rolfeæ are easily grown and very beautiful. O. × Lambeauianum is a secondary hybrid of the same, which presents a bewildering amount of variability. O. × armainvillierense, the hybrid between O. Pescatorei and O. crispum, is as easily grown as its parents, and presents a varied series of exquisitely blotched, as well as a few white, forms, while O. × amabile is also very variable and beautiful.

Masdevallias are flowering in increasing numbers, and the scarlet-flowered section will soon present an imposing display where their requirements are well looked after. M. caudata and several of the smaller flowered species are very attractive, and deserve more attention than they sometimes receive. Ada aurantiaca is an easily grown and floriferous plant, and its orange-coloured flowers, sometimes spotted with brown, are very effective.

In the Intermediate house Cattleya Schrœderæ is now one of the most attractive species, but several others are rapidly approaching the flowering stage, and great care should be taken to prevent the developing buds from

experiencing a check. A few early-flowering hybrids are also in bloom. Plants of Cœlogyne cristata are now a picture of loveliness, also the brilliant Sophronitis grandiflora. Lycaste Skinneri is flowering freely, also the beautiful Trichopilia suavis, while Miltonia vexillaria, some of the Oncidiums, Cymbidium eburneum and Lowianum, and numerous others are rapidly approaching the flowering stage.

In the Warm house Dendrobium nobile, D. Wardianum, D. × Ainsworthii, and other hybrids are producing a fine display of bloom, and the beautiful D. thyrsiflorum is developing its flower buds. The winter-flowering Cypripedes are not yet quite over, while C. Lawrenceanum, barbatum and others are coming on to take their place, also the charming little species of the C. bellatulum group.

A good deal of attention will now be required in the matter of shading and ventilation, to prevent violent fluctuations of temperature, for the sun is gaining considerable power, yet is often accompanied by cold drying winds. The ventilators on the shady side of the house should be chiefly utilised, and the pipes should be kept as cool as possible on all bright days. A moist genial atmosphere should be maintained by damping down the walls, floors and stages as often as necessary. A sharp watch must also be kept for the appearance of insect pests, and any necessary measures for their eradication promptly taken.

There will be plenty of potting and topdressing to attend to, and it will be remembered that the proper time for this operation is generally soon after new growth commences and young growths are beginning to push, so that they may be able to utilise the new compost at once. For these details, however, the amateur is referred to the Calendar of Operations for the month.

Dendrobium Smilliæ is a rare and interesting Australian Dendrobium which was exhibited at the R. H. S. meeting held on March 8th last by Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier). It belongs to the section Pedilonum, and has rather dense racemes of white flowers, tipped with green. It recalls D. secundum in habit, but has much larger flowers. The species was described by F. Mueller, about 1867 (*Fragm. Phytogr. Austral.*, vi. p. 94), from specimens collected at Rockingham Bay, Queensland, by Dallachy, and according to Reichenbach appeared in cultivation in 1879, having been introduced by Mr. Bull from North Australia (*Gard. Chron.*, 1879, i. p. 106). It is well figured by Fitzgerald (*Austral. Orch.*, i. pt. 7, t. 2) under the name of Cœlandria Smilliæ, that author regarding it as distinct from Dendrobium. Messrs. Sander also flowered it in 1900, the plant having been introduced by them with other Australian Orchids.—R. A. R.

OBITUARY.

DREWETT O. DREWETT.—We regret to hear of the death of Mr. D. O. Drewett, of Willow Wood, Riding Mill, Northumberland, which took place rather suddenly on March 9th last. The deceased, who was 72 years of age, had resided at Riding Mill for about 36 years, and during the greater part of that time he has been a grower and hybridiser of Orchids, being chiefly interested in Cypripediums. His first hybrid flowered as long ago as 1886. This was C. × apiculatum, raised from C. barbatum × Boxallii. A year later appeared C. × pleistochlorum, from C. barbatum × virens. In 1888 were added C. × caligare (Dayanum × venustum), and C. × pavoninum (Boxallii × venustum), and in 1889 C. × Beatrice (Boxallii × Lowii). Five novelties were added in 1890, namely C. × Alfred (venustum × philippinense), C. × Alice (Stonei × Spicerianum), C. × Constance (Stonei × Curtisii), C. × Elinor (× selligerum × superbiens), and C. × Northumbrian (× calophyllum × insigne). In 1891 appeared C. × Pallas (× calophyllum × callosum) and C. × Juno (callosum × Fairrieanum), the latter probably being Mr. Drewett's best hybrid. A year later C. × Drewettii (Lowii × niveum) was recorded. In 1901 we find records of C. × Bryan (tonsum × philippinense), C. × Ettyi (insigne × Godefroyæ), and C. × Wilsonæ (Sanderianum × Argus), and in 1903 of C. × calypsoides (× Calypso × Rothschildianum). Of late years Mr. Drewett devoted himself to raising winter-flowering Cypripedes, particularly the best varieties of C. insigne, and by intercrossing them, produced several notable varieties, among the best being C. i. Aberdeen, Grand Monarque and James Renwick, the last named after his able gardener, who had long shared his enthusiasm. A portrait of Mr. Drewett appears in the *Gardeners' Chronicle* for March 19th, page 191.

DENDROBIUM DONNESIÆ.—The question of the status of this handsome Dendrobium has again been raised. It was exhibited at a meeting of the R. H. S. held on March 26th, 1895, by J. Bradshaw, Esq., Southgate, and received an Award of Merit, being recorded as a natural hybrid between D. formosum and D. infundibulum (*Gard. Chron.*, 1895, i. p. 402). The late Major-Gen. E. S. Berkeley shortly afterwards pointed out that this was impossible, as the two supposed parents do not grow together (*O.R.*, iv. p. 167). Soon after its original appearance a fine coloured plate was given in the *Garden* (1895, ii. p. 223, t. 1032, fig. 1), which clearly shows that the plant is an exceptionally large variety of D. infundibulum, with a very broad lip, and we presume that it came out of an importation of that species. An interesting note on the distribution and variation of D. formosum was given by Berkeley in the paper above mentioned.—R. A. R.

DENDROBIUM × AINSWORTHATUM.

At the R. H. S. meeting held on March 8th last, a batch of seedling Dendrobiums, obtained from a single capsule of D. × Ainsworthii crossed with the pollen of D. signatum aureum, and showing a considerable range of variation, was exhibited by Sir Trevor Lawrence, Bart., Burford, under the above name. Flowers were afterwards sent by Mr. White, and are here figured, half natural size, from a photograph taken by Mr. F. W Rolfe. It supplies a graphic record of the range of variation, so far as shape is concerned, and the range of colour is indicated below. The centre

Fig. 8. Dendrobium × Ainsworthatum.

flower is particularly good in shape, and measured three inches from tip to tip of the petals. The colour is bright buff yellow, with a slight tinge of purple at the apex of the sepals and petals, while the disc of the lip is reddish maroon, with a number of purple streaks on the side lobes. The one beneath it is most like a small D. nobile with yellow sepals and petals, the shape of the lip and the maroon disc being very similar. The right hand flower in the bottom row is bright yellow, with only a few purple streaks on the side lobes of the lip. All the others have a good deal of the

nobile shape, and more or less of the maroon disc, but the ground colour is buff yellow, except the right and left hand flowers of the upper row, which are primrose. Both the yellow and the maroon vary in depth of tint, and the latter also somewhat in amount, this detail being less distinct in the figure than could be wished, because of the position of the lip. Had both the parents been hybrids it is probable that the range of variation would have been greater, and it will be noticed that none of the seedlings reverted to purple, though the centre flower showed a slight trace of this colour at the apex of the petals and dorsal sepal. Some day we hope to be able to figure a group showing a greater amount of dissociation of the original specific characters. Such a group could best be selected from a batch of seedlings derived from two primary hybrids in which four dissimilar species were represented.

CALENDAR OF OPERATIONS FOR APRIL.

By W. C. PRICE, Oakdene, West Didsbury.

TEMPERATURES, when the sun is shining, may be allowed to rise five degrees or so above the figures given last month, but must not on any account be run up with fire-heat. They must be governed by the mildness of the weather. The amount of moisture must be increased to meet requirements, and care should still be taken with the ventilation. The top ventilators should only be used when favourable conditions prevail, but the lower ventilators should be partially opened early in the morning, and opened wider as the temperature rises, so that there is no sudden drop by having to open them all at once. On mild nights the lower ventilators may be left open about an inch, as it helps to keep a free circulation, and the houses do not feel so stuffy the first thing in the morning as they do sometimes when shut right up on a mild night.

ANGULOAS are now pushing their young growths and flower buds, which appear together, and if repotting is required, it should be done as soon as the new growth is seen. Repotting can then be done before the roots are advanced enough to be damaged by the operation. Use a compost consisting of one-third each of good fibrous loam, peat, and sphagnum moss, with a good sprinkling of coarse silver sand, all mixed well together. Use pots large enough to last them two years; put about one inch of clean crocks at the bottom for drainage, and pot moderately firmly. Bring the compost just to the base of the bulbs, as it is very important that the young growth should not be below the surface. Leave about half an inch of space below the rim of the pot so as to allow for watering. They should be very sparingly watered after repotting, but when well rooted they require copious supplies till the bulbs are fully matured. We find that they grow and flower admirably at the warm end of the Intermediate house.

CATTLEYAS.—C. Warscewiczii (gigas) and its varieties imperialis and

Sanderiana are now pushing their new growths, but the grower must not be misled by this into giving them too much water at the roots. They should have just enough to keep them moving till the bulbs are about half formed, when they will push a lot of young roots from the base. Let these get well into the compost before increasing the amount of water. They are a very shy flowering section of Cattleya, and should have the lightest position at the warm end of the Cattleya house. C. citrina will now have its flower buds well advanced, and should have copious supplies of water till the flowers are off. We put them into the Cattleya house as soon as the buds are seen, but as soon as the flowers are over they are moved into a shady part of the Intermediate house, and only given sufficient water to keep the pseudobulbs plump till they start into growth. C. Gaskelliana, C. bicolor, C. amethystoglossa, C. velutina. C. Leopoldi, and C. granulosa are now making new growth, and any that require repotting may be attended to, using the compost as recommended in February. C. Dowiana aurea and C. × Hardyana require similar treatment to C. gigas, but are not so difficult to flower.

CATTLEYA FLY.—Imported Cattleyas should be closely examined on arrival for traces of this dreaded pest. If there are any small holes in the bulbs, denoting that they have had the fly, they should be well washed in a solution of insecticide and water, and placed by themselves, quite away from any other Cattleya, till they have made one season's growth, a strict watch being kept for any appearance of the fly. An experienced grower will soon tell whether any plant has it, but an amateur, or even a grower who has never seen this pest, will do well to consult someone who has experienced it, and make sure on the subject, for if it once gets a foothold in a collection of Cattleyas it will soon ruin the lot. In a young state it is detected by the abnormal size of the young growth at the base, which tapers to such a degree at the top of the growth that it is out of all proportion, showing that there is something wrong. If such a growth is cut open there will be found about two to eight white maggots, which feed upon the inside of the young growth, and eventually become flies if allowed to develop, and on emerging lay their eggs in other plants, and so ruin the lot. The best way to get rid of them is to cut off all infested growths as soon as noticed, and fumigate the house with XL All fumigating compound twice a week till the pest is cleared out. It is a drastic method, but the safest. If prevented from breeding they can be quickly got rid of.

CYPRIPEDIUMS.—C. bellatulum is now coming into flower, and should be grown with C. niveum, C. Godefroyæ and its variety leucochilum in the lightest and warmest part of the Cypripedium house. As they go out of bloom, those that require it should be repotted, using a compost consisting of limestone and good fibrous loam broken into pieces the size of a walnut.

Use pots large enough to last them at least two years, as they do not like being disturbed too often. Place a crock over the hole at the bottom of the pot, and then alternately a piece of limestone and loam from the bottom of the pot till the process of potting is completed. Pot moderately firmly, and when rooted into the compost give copious supplies of water. They should never be allowed to get dry at the root, which is the cause of so many failing to grow them satisfactorily. The old idea of keeping them dry through the winter is a great mistake, as it weakens the plant, and before it can regain its vigour it is time to dry them off again. Consequently the plant gives up in disgust and simply dwindles away.

CALANTHES of the deciduous section will now be pushing new growths, and should be repotted. We find that they grow well in a compost consisting of two parts fibrous loam and one each of Osmunda fibre and sphagnum moss, with plenty of silver sand to keep it open. They can either be potted singly, or, if a large plant is required, four or five of the newest bulbs can be put into one pot, and placed round the centre, with the young growths facing outwards. The pots should be about half filled with drainage, and the compost pressed in moderately firmly. Give them a good watering with a rose can to settle the compost, but afterwards, until well rooted, they will require very little, for if overwatered at this stage they are liable to get the black spot, which is to be avoided. The old bulbs, if placed close together in a box or pan with a ltttle sphagnum moss, will soon send out young growths, and can then be potted up and placed with the others. We find that they grow remarkably well in the Dendrobium house, being placed at one end where they can be shaded more, and do not get sprayed so much as the Dendrobiums. If there is no room for them in the Orchid houses, they will do exceedingly well either in the ordinary plant stove, or in a melon pit where they can have a little shade.

CŒLOGYNE CRISTATA and its varieties are now making new growths, and should be repotted if requiring it. Any plant that is in good condition need not be disturbed, if the compost is good and sweet. Simply turn any portion of the plant that is projecting over the side of the pan, and peg it down with the lead facing towards the centre of the pan. Any that require repotting should be shaken right out, and all back bulbs except the four behind the young growth should be cut away, afterwards placing as many leading portions together in a pan according to the size of the specimen wanted. We use rather large pans, about half filled with drainage, and a compost consisting of one-third each of fibrous loam, peat, and sphagnum moss, broken up roughly, and well mixed together. They should be potted firmly, and afterwards they should have a good watering with a fine rose, and be placed at the warm end of the Intermediate house. They should be kept well shaded, and well sprayed, which will be sufficient water for them

till they get well established again. The back bulbs that were cut off can be placed together in pans, with a little sphagnum moss, and placed in a warm house, where they will soon make new plants.

Dendrobiums, with the exception of such varieties as albosanguineum, amœnum, Bensoniæ, moschatum, pulchellum (Dalhousieanum), × Dalhounobile, and other late blooming varieties, will now have finished flowering, and should be repotted as recommended in last month's Calendar. They should be grown in a temperature of not less than 80°, and require but very little ventilation till the growths are nearly finished. They should have all the sunlight possible without being allowed to scald. Keep the house well saturated with moisture, and spray the plants overhead several times daily with clean soft water, which should be placed in the house long enough to get warm before using. The point to have in view in successfully growing Dendrobiums is to get the young bulbs made up early in the autumn, so that they can be properly ripened up before the dull short days arrive, after which it is impossible to ripen them satisfactorily. If not properly ripened the grower is greatly disappointed to find when the flowering season comes, that, although he has fine bulbs, they fail to flower, and this I think is one of the chief reasons why many people give up cultivating them.

Miltonias.—M. vexillaria and its varieties are now pushing up their flower spikes, and should have copious supplies of water. They should be lightly fumigated every week till the flowers are open, so that they may be free from the little yellow thrips which are so often very lively on Miltonias when about to flower. At the end of this month the plants should be placed at the warm end of the Odontoglossum house, where they can remain till the autumn.

Odontoglossum citrosmum may now be given water, as all that will flower this season will now be showing their flower spikes. Give the plants a good soaking, and then treat them in the ordinary way. Care should be taken to keep the water away from the young growths. Any plant requiring repotting may now be done. We use a compost consisting of half each of sphagnum moss and peat, and pot firmly. They should now be suspended in the Cattleya house for the growing season.

Trichopilias.—Many growers fail to grow this very pretty and interesting class of Orchid satisfactorily, and I think many give them too much heat during the summer. They should now be placed in the Intermediate house and not overwatered. They should be kept just moist, except when they are making new growth, and then they can have a little more water, but should never be saturated. A suitable compost for them consists of half each of peat, or Osmunda fibre, and sphagnum moss. They should be grown in shallow pans, large enough to hold them comfortably, and potted firmly.

DIACATLÆLIA GATTON ROSE.

A VERY interesting hybrid was exhibited at the R.H.S. meeting held on March 8th last by Sir Jeremiah Colman, Bart., Gatton Park, Reigate, of which the parentage was given as Diacrium bicornutum × Læliocattleya Cappei. It showed the Diacrium influence very clearly, though the habit was considerably modified, but the flowers were pale lilac-rose, with a little darker spotting on the disc of the lip. As this recalled a light-coloured Lælia autumnalis or L. majalis, we enquired whether the latter could not have been one of the parents. Mr. Collier replied that the record was taken from the hybridising book, and he believed Mr. Bound was very careful with his records. He could find no record of L. majalis being used with the Diacrium, and he thought the cross given must be correct. He further remarked that a short time ago they flowered a seedling from Cattleya Schrœderæ × L.-c. Cappei, which showed not the slightest trace of the Cappei colour, apart from a little more yellow in the throat. The colour was quite a nice pink, although the C. Schrœderæ parent had white sepals and petals. L.-c. Cappei is a hybrid from Lælia cinnabarina and Cattleya Warscewiczii, and the colour of the former species is known to be remarkably persistent in its hybrids. One pollen grain alone is concerned in the production of any individual seedling, and if L.-c. Cappei is capable of producing some pollen grains which are pure C. Warscewiczii, and others which are pure cinnabarina, and if one of the former united with the particular embryo of Diacrium bicornutum which yielded this seedling, it ought to be possible to produce a similar hybrid from C. Warscewiczii direct, and the experiment might be tried. If it is a case of dissociation, and there are other seedlings, it will be interesting to watch for evidence of the influence of L. cinnabarina, and in any case they should throw further light on the matter. We are not unaware of the vagaries of secondary hybrids, and we are frequently asked to solve the parentage of hybrids when the records have been lost, and of natural hybrids whose origin is necessarily problematical. One has then to judge by the hybrid's own characters, aided in the latter case by any knowledge of the species that grow naturally intermixed. The method is pretty safe with most primary hybrids, but cases of this kind under discussion seem likely to provide a new terror for botanists. We doubt whether anyone would have given L.-c. Cappei as one parent of this hybrid without the actual record, and it causes one to think furiously. Some very interesting problems are accumulating, and invite experiments specially directed to their solution. The generic name Diacatlælia is uniform in construction with Brassocatlælia and Sophrocatlælia. The specific name is that under which the hybrid was exhibited.

A NOMENCLATURE NOTE.

In the last issue of the *Journal of the Royal Horticultural Society* we find (p. 406) an appreciative review of the *Orchid Stud-Book*, but there is one remark in the inevitable note on nomenclature to which we wish to reply. The Reviewer remarks:—"It seems a pity to discard such well-known names as Brassocattleya Digbyano-Mossiæ . . . upon what appear quite insufficient grounds. Short names of the Latin form are no doubt preferable to long ones . . . in the vernacular; but if rules are made concerning this, they should not be made retrospective at this late date. Many vernacular names are Latinised in the list: thus Cattleya × 'Lord Rothschild' becomes C. × Rothschildiana." And the allusion to "certain rules they have laid down" would imply that these rules are of the Authors' own making.

But the rule to which exception is thus taken is the Society's own, drawn up by a Nomenclature Committee appointed by it, and printed in its own "List of Orchids Certificated from 1859 to 1893," under the title, "The Naming of Orchids for Garden purposes." It provides that "Hybrids between species raised artificially should be named in Latin, with the addition . . . of the sign of hybridity, ×," and there is further the "General Recommendation" that "The Orchid Committee should decline to recognise . . . any name that is . . . not applied in conformity with the preceding rules." But the Orchid Committee gave a First-class Certificate to Cattleya × Lord Rothschild, thus ignoring the recommendation, when they might have put themselves right by applying the rule. We hope the Society's Reviewer appreciates the humour of putting the Authors in the pillory for carrying out its own rules. Again, the name Cattleya × Lord Rothschild is not in accordance with the Laws of Botanical Nomenclature, for the Vienna Rules provide that if a name is given to a primary hybrid such name must be in accordance with the said laws.

As to the name Brassocattleya Digbyano-Mossiæ, it is not quite clear how far the Society's rules apply, but as it contains seven syllables it comes under the prohibition of sesquipedalean names, and we may remind the Reviewer that the *Gardeners' Chronicle* in 1889, said: "We hope some means may be taken to render the specific name less cumbrous." The advice was taken as long ago as 1902, when the plant became Brassocattleya Veitchii, a name in accordance with the Laws of Botanical Nomenclature.

The principle of a simple specific name has the merit of convenience when varietal names have to be added. Cattleya × William Murray fulgens was once recorded, but the name has been improved by its

abbreviation to C. × Murrayi fulgens. Some of these days we may have a Cattleya × Lord Rothschild var. alba, but how much more euphonious C. × Rothschildianum alba would be, for in such cases the abbreviation "var." is unnecessary, being understood. We have already a white Brassocattleya Veitchii, which is called Brassocattleya Digbyano-Mossiæ var. Queen Alexandra when our scribes have time to write it, and our label writers the necessary space. When not, they call it B.-c. Queen Alexandra, but the omission of the specific name is not correct. We can legitimately abbreviate it to B.-c. Veitchii var. Queen Alexandra. One specific name is on record consisting of five words and twenty-five letters, which the authors of the *Stud-Book* have abbreviated to a single word of seven letters. If such a case does not justify a rule being made retrospective justification is impossible, and chaos inevitable. What is wanted is a frank recognition of the fact that rules are necessary to an orderly arrangement, and that they were made to be carried out. It is the neglect to carry out a few comparatively simple rules that is chiefly responsible for the growing confusion in nomenclature.

ADAPTATION OF THE PLANT TO THE SOIL.

THIS question, which was the subject of the two last Masters' Memorial Lectures, given by Mr. A. D. Hall, F.R.S., is of great practical interest to Orchid growers, and a hint thrown out by the Lecturer might be followed up with advantage. Speaking of the varying composition of soils as affecting the development of bacteria causing nitrification, he remarked that many classes of plants—certain Ericas, Conifers, and Orchids—derive their food supplies from the soil by the aid of the mycelium of certain fungi with which their roots are associated. Such cases of mycorhiza are associated with acid soils in which nitrates are lacking; probably the mycelium of the special fungi cannot stand the competition with bacteria in neutral or slightly alkaline soil in which bacteria flourish. The association of acidity or neutrality of soil with particular plants would seem to be an ecological factor worthy of more observation. Carbonate of lime is regarded as poisonous to certain plants (*e.g.*, peat-lovers), but this is probably not a positive injurious action of the lime on the plant, but a secondary one in that the lime removes the acid soil conditions which these plants find necessary. When protected from competition, as under cultivation, he remarked that growth does not depend upon what might be called vitality or constitution, but upon food supply. The Lecturer concluded by stating that his lectures had been all along directed to indicating our ignorance and the field for work that is open. In the present state of our knowledge it is vanity to dogmatise about the requirements in the way of soil of more than a few plants.

ODONTOGLOSSUM × CRAVENIANUM.

This is a very charming hybrid, raised by Messrs. Charlesworth & Co., Haywards Heath, from O. cirrhosum and O. ramosissimum, to which an Award of Merit was given by the R.H.S. on March 8th last. By the courtesy of the *Gardeners' Magazine* we are able to give the annexed

Fig. 9. Odontoglossum × Cravenianum.

photographic illustration, in which its characters are graphically portrayed. It has retained much of the general character of O. cirrhosum, which we believe was the seed parent, but the undulation and spotting of the segments are derived from O. ramosissimum, and serve to recall the rare O. nævium. It only remains to be said that the colour of the flower is white, spotted with bright purple. It should develop into a very handsome thing when

the plant becomes strong. It is the first hybrid from O. ramosissimum, a species which is not often seen in cultivation, though its numerous flowers with very undulate spotted segments are very attractive.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on March 8th last, when there was a very fine display of Orchids, and the awards consisted of eight Medals, one First-class Certificate, and four Awards of Merit.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), staged a beautiful group of Phaiocalanthe Baron Schröder (P. Wallichii × C. × Baron Schröder), to which a Silver Flora Medal and a First-class Certificate were given. It is a vigorous grower, the spikes being stout, sometimes reaching nearly five feet high, and the flowers vary considerably, the sepals from white to blush and light yellow, and the lip from deep violet-purple to rose colour.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group, including some handsome forms of Læliocattleya luminosa, Sophrolælia Marriottiana, S.-l. Psyche, Miltonia × Bleuana, Odontioda Bradshawiæ Goodson's var., the richly-coloured Odontoglossum × illustre var. King of England, O. crispum Battle of Waterloo, O. × spectabile, O. × warnhamense, and other choice things.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Læliocattleya Goldfinch, Westonbirt var. (L.-c. warnhamensis × C. Dowiana aurea), a richly-coloured form, having reddish orange sepals and petals, more or less shaded with rose, and a deep ruby-red lip, veined with deep yellow at the base. He also sent Cattleya × Frederickiæ superba, a very fine rose-coloured form, with much yellow veining in the throat, Cattleya chocoensis alba, Westonbirt var., and Dendrobium × Radiance, a very handsome D. × melanodiscus hybrid, having rosy sepals and petals, and the maroon-purple disc of the lip margined with deep yellow.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), received an Award of Merit for Epicattleya Nebo (E. × O'Brienianum × C. × Claesiana), a pretty hybrid, most resembling the former in habit, but dwarfer and with broader leaves, and the flowers rosy-purple with a whitish fringed lip. He also sent Sophrocatlælia bletchleyflora (L.-c. bletchleyensis × S. grandiflora), a rich reddish scarlet hybrid, the rare Dendrobium superbum Huttoni, three good D. × Melpomene, D. × Wiganatum (× Wiganiæ × signatum), and D. × Ainsworthatum (× Ainsworthii × signatum), the latter an interesting hybrid which is figured on page 105.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received an Award of Merit for Cymbidium × Lowgrinum, Rosslyn var., a dark form, having reddish brown sepals and petals, and a very dark blotch on the front of the lip.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group, including two plants of Dendrobium Smilliæ, an Australian species having white flowers, tipped with green, D. × chessingtonense, and two pretty hybrids from D. × Wiganiæ × Ainsworthii intertextum, and D. Findlayanum × Othello, Masdevallia Chimæra, Bulbophyllum sicyobulbon with several spikes, Pholidota gracilis, bearing a dozen short spikes of white flowers, Cirrhopetalum Mastersianum, Pleione yunnanensis, a well-bloomed Maxillaria flava, a richly-coloured Sophrocatlælia derived from Sophronitis grandiflora and Læliocattleya Charlesworthii, and Diacatlælia Gatton Rose, supposed to be from Diacrium bicornutum and Læliocattleya Cappei, but the pale rose colour suggested rather the influence of Lælia majalis.

Mrs. Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cypripedium × hirsuto-Leeanum showing the influence of both parents, C. × Chapmaniæ aureum (Fairrieanum × Calypso), approaching C. × Niobe, but with a yellow base to the dorsal sepal, and Odontoglossum × percultum Clive, heavily blotched with ruby-red on a yellowish ground.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent Odontoglossum crispum Winnie, a handsomely blotched form, O. × Wyonianum, prettily spotted with purple on a white ground, O. × Wilckeanum, Miss Louisa Fowler, a large and handsome variety, and O. × ardentissimum Empress of India.

G. Hanbury, Esq., Blythewood, Burnham, Bucks (gr. Mr. Branson), sent a very fine specimen of Cymbidium × eburneo-Lowianum bearing about twenty-one flower-spikes.

Mr. C. Kirch, Uplands Road, Hornsey, sent a pretty, nearly white form of Brassocattleya langleyensis.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Phaius maculatus.

E. Rogerson, Esq., Oakdene, West Didsbury, (gr. Mr. Price), sent Cypripedium × Boadicea, Schofield's var., and Odontoglossum × Lily Wilkinson, a pretty white hybrid densely spotted with rose-purple.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Black), sent the handsome Sophrocattleya Doris, Odontoglossum × Blackii (Rossii × Pescatorei), most like the former in its spotted sepals and white petals, but showing the influence of the latter in the pandurate lip and crest; also three plants of the rich yellow Dendrobium × chessingtonense, and two or three other pretty hybrid Dendrobiums.

G. P. Walker, Esq., Heatherwood, Putney Heath, sent Dendrobium hedyosmum, a very fragrant species now seldom met with.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a large and well-shaped form of Cattleya Trianæ.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice group, to which a Silver Flora Medal was given. It contained a very beautiful series of Odontiodas, including a charming form of O. heatonensis, the bright scarlet O. Bohnhoffiæ, a fine O. Charlesworthii, O. Vuylstekeæ, keighleyensis, Goodsonæ, and Craveniana, the rare Vanda cœrulescens, Nanodes Medusæ, Miltonia × Bleuana grandiflora, the handsome Sophrocatlælia Marathon, the pretty blue Disa lacera multifida, Cœlogyne speciosa, Lycaste Skinneri alba, Cymbidium × Wiganianum, some well-bloomed Sophronitis grandiflora, two very fine Brassocattleya Maroni, Læliocattleya bella and others, some good Dendrobium Wardianum, Odontoglossum × amabile, O. × armainvillierense xanthotes Charlesworthii, O. × Ceres, × mulus, × Phœbe, and other good things. An Award of Merit was given to O. × Cravenianum (cirrhosum × ramosissimum), a charming hybrid, with acuminate undulate white segments, prettily spotted all over with purple.

Messrs. Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group, containing some good examples of Dendrobium infundibulum, D. nobile, and numerous hybrids, some good forms of Cattleya Trianæ, Lycaste Skinneri, Calanthe Regnieri, Cymbidium × eburneo-Lowianum, Cœlogne cristata, Masdevallia tovarensis, M. × igneo-Estradæ, Oncidium splendidum, Cypripedium × aureum virginale, C. × a. Surprise, C. × Mrs. Wm. Mostyn, Cattleya × Suzanne Hye de Crom, and other good things.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a large and handsome group, including a richly-coloured Odontoglossum × Phœbe, O. × Rossianæ (Rossii × Adrianæ), an interesting hybrid, most like the former except in the modified shape of the lip and crest, and other fine Odontoglossums, a good example of Odontonia Lairesseæ, some fine forms of Miltonia × Bleuana, three very fine specimens of Pleurothallis Roezlii, several plants of the brilliant Renanthera Imschootiana, Cœlogyne corymbosa, C. speciosa, Cymbidium Schrœderianum, a fine form of Sophrocatlælia Danæ, Dendrobium Findlayanum, a well-flowered D. velutinum, the curious D. epidendropsis, Brassocattleya Pluto, Leptotes bicolor, Brassocatlælia Rowena, several good Cattleya Trianæ, Eria floribunda, E. marginata, and other interesting things.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a group of very fine forms of Cattleya Schrœderæ, with a very good C. Mendelii and Odontoglossum crispum.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver

Banksian Medal for a good group, including Dendrobium × Wiganiæ xanthochilum, D. × Rubens grandiflorum, D. nobile murrhiniacum, D. × pallens, Masdevallia Schrœderiana, Brassocattleya langleyensis, Cymbidium insigne with six fine spikes, a few good Cattleya Schrœderæ, Lycaste Skinneri alba, Stanhopea eburnea with four flowers, Cypripedium × aureum Surprise, C. × a. Hyeanum, &c.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including the striking Pleurothallis Scapha, some good Dendrobium Wardianum, D. fimbriatum oculatum, the curious D. linguiforme, D. crassinode, D. nobile nobilius, D. × chessingtonense, Cymbidium × Holfordianum, C. Lowianum, some good Cattleya Schrœderæ, Odontoglossum blandum, Ipsea speciosa, the curious Bulbophyllum comosum, B. lilacinum, Gomesa crispa, Lælia Jongheana, the pretty yellow Sophronitis Lowii, Trichopilia nobilis, Eria flava, Masdevallia × Pourbaixii, M. Schrœderæ, Cypripedium × villexul, Odontioda Seymourii, a pretty hybrid from Cochlioda vulcanica and Odontoglossum Uroskinneri, most like the former in shape and colour.

Messrs. Heath & Son, Cheltenham, sent a small group of Cypripedes, including several plants of C. × Aureole (villosum × nitens), a very pretty brownish yellow form with some dark blotches on the dorsal sepal, C. × Swinburnei, C. × Mrs. Wm. Mostyn, and others.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent Miltonia × Bleuana, Cattleya × Suzanne Hye de Crom, two Odontiodas, and a few good hybrid Odontoglossums.

Messrs. Stanley & Co., Southgate, sent a few good Cattleya Trianæ, Brassocattleya Veitchii, Odontoglossum × Adrianæ, O. × Lambeauianum Masdevallia caudata, and M. Schrœderiana.

At the meeting held on March 22nd there was again a good display of Orchids, and the awards consisted of five medals, one First-class Certificate, four Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Cattleya × Robert de Wavrin, Westonbirt var. (Schilleriana × Schrœderæ), a remarkably large and handsome form of excellent shape, having rose-pink sepals and petals, and a deep rose-coloured lip with a pale undulate margin. The original form was also shown.

Sir Trevor Lawrence, Bart., Burford (gr. Mr. White), showed a pretty little group, including Læliocattleya Cooksonæ, a fine example of Dendrobium × Dalhou-nobile, and Lycaste × Mantinii, a hybrid of L. Deppei, having cream white flowers speckled with rose. An Award of Merit was

given to Læliocattleya Trimyra (C. Trianæ × L.-c. Myra), a fine hybrid bearing an inflorescence of three large and handsome deep yellow flowers; a Botanical Certificate to Polystachya bracteosa, a tropical African species, having flattened pseudobulbs and a drooping panicle of greenish hairy flowers, with some brown markings on the lip; and a Cultural Commendation to a plant of the pretty Australian Sarcochilus Hartmanii, bearing four spikes. It has been in the collection for about thirty years.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a very interesting group, including a well-bloomed plant of Dendrobium teretifolium, Pleurothallis Grobyi, Cirrhopetalum picturatum, the rare Bulbophyllum Sillemianum, with solitary yellow flowers, Polystachya pubescens, Dendrobium × Gatton Yellow, having bright yellow flowers with a dark maroon disc, Megaclinium falcatum with a dozen scapes, Cœlogyne lactea, Cattleya Schrœderæ, Gatton Park var., Epidiacrium Colmanii, Diacattleya Colmanii, and Brassodiacrium Colmanii. An Award of Merit was given to Odontoglossum × Thompsonianum, Gatton Park var., a very fine form, having violet-purple segments tipped and margined with rose.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent Sophrocatlælia Olive (S.-l. Psyche × C. × Enid), a light magenta-rose hybrid, together with flowers of both its parents.

A. Harrison, Esq., Lyndhurst, Watford, sent Dendrobium Wardianum and D. nobile.

F. M. Ogilvie, Esq., Oxford, sent a spike of the rare Odontoglossum triumphans aureum.

Lord Onslow, Clandon Park, Clandon, Surrey, sent a specimen of Dendrobium Wardianum album.

Messrs. Sander & Sons, St. Albans, staged a choice and varied group, to which a Silver Flora Medal was given. It contained three fine examples of Vanda cœrulea in the centre, a series of Cattleya Schrœderæ, a beautiful series of hybrid Odontoglossums and Læliocattleyas, Brassocattleya Hyeæ, Scuticaria Hadwenii, Dendrobium bellatulum, D. capillipes majus, some fine D. Brymerianum, Renanthera Imschootiana, Phalænopsis Lueddemanniana, Cymbidium Schrœderianum, Epidendrums, Erias, &c. An Award of Merit was given to Houlletia Sanderi (Rolfe), an interesting species, with two spikes of about a foot high, and bearing respectively two and three cream white flowers, with some yellow at the base of the lip.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a rich group, including many fine Odontoglossums, noteworthy among them being a very beautiful O. crispum, raised from a rose-tinted blotched form and O. c. Louis Sander, O. × Thompsonianum, O. × Persephone, O. × amabile mosaicum, Odontioda Vuylstekeæ, Bohnhoffiiæ

and Bradshawiæ, Cymbidium × eburneo-Lowianum concolor, the fine Cattleya Trianæ Mafeking, with purple tips to the petals, and a richly-coloured lip, a very fine series of Brassocattleyas and Læliocattleyas, noteworthy among them being B.-c. Cliftoni and L.-c. Hypatia, the latter bearing a spike of twelve copper-coloured flowers, with a crimson lip, Bulbophyllum barbigerum, Cypripedium præstans, Vanda Bensoni, &c.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Flora Medal for a group of choice things, including a fine Cymbidium insigne in the centre, a good series of Brassocattleya langleyensis, Lycaste Skinneri alba, Cypripedium × aureum Surprise, Dendrobium nobile virginale, D. Wardianum ochroleucum, D. × pallens, D. × xanthocentron, Cattleya Schrœderæ Mrs. J. Marshall, white with an orange disc to the lip, some choice forms of Cattleya Trianæ, &c.

Messrs. Stuart Low & Co., Bush Hill Park, also received a Silver Flora Medal for a very varied and handsome group, including some excellent Cymbidium insigne, one of them bearing an arching spike, a dark C. × Lowgrinum, a good Dendrobium crassinode album, several strong plants of D. × Venus, D. Jamesianum, and other Dendrobiums, Cattleya Dusseldorfii Undine, the brilliant Odontioda keighleyensis, and O. Bradshawiæ, a well-bloomed Lycaste macrophylla, the very pretty Maxillaria sanguinea, Odontoglossum cordatum, Low's var., Cirrhopetalum picturatum, a well-bloomed C. Mastersianum, Bulbophyllum cupreum, Pholidota chinensis, and other interesting species.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a beautiful group of Odontoglossum crispum, O. × Wilckeanum, Cattleya Mendelii, some very good C. Schrœderæ, Miltonia Phalænopsis, Cypripedium × Ettyi (Godefroyæ × insigne), &c. An Award of Merit was given to Odontoglossum × Gladys var. H. W. Cheal (cirrhosum × spectabile), a charming form having white flowers, tinged with canary yellow on the margins, and well blotched with dark purple, chiefly on the sepals.

Mr. W. Bolton, Wilderspool, Warrington, sent flowers of a batch of Cypripediums raised from C. × Maudiæ and C. × Charlesworthii, showing a wide range of variation.

Messrs. Cypher & Sons, Cheltenham, showed a good group of Dendrobiums, including D. nobile Ashworthiæ, D. nobile Heathii, D. n. giganteum, Berkeley's var., a very handsome form, D. × Rubens grandiflorum, D. × Luna, D. × Melpomene, D. × Schneiderianum, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, sent some excellent forms of Cattleya Schrœderæ, with a few good C. Mendelii and Odontoglossum crispum.

Mr. W. H. Young, Mercury Nursery, Romford, sent a light form of Cypripedium villosum annamense, with a white margin to the dorsal sepal.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting of this Society, held at the Coal Exchange, Manchester, on March 3rd, brought together several beautiful exhibits and specimens. Committee present: Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Arthur, Chapman, Shill, Warburton, Keeling, Holmes, Ashton, Parker, Cypher, and Weathers (Hon. Sec.).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a fine group of Cattleyas and Lælias, intermixed with Lycaste Skinneri, and a few choice Cypripediums, &c. A magnificent Læliocattleya × Dreadnought (L.-c. Greenwoodii × C. Mossiæ) of fine proportions and colouring, gained a First-class Certificate and a Silver Medal. Brassocattleya Pluto, Cattleya Trianæ alba violacea, and L.-c. × Hypatia each received an Award of Merit. The group, being divided for competition, received two Silver-gilt Medals.

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a fine group, of great variety, and including a well-flowered plant of Lycaste fulvescens, Restrepia elegans finely flowered, a highly coloured Læliocattleya Dominiana, and many rare botanical specimens (Silver-gilt Medal). Læliocattleya × Ivernia received an Award of Merit.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), staged a very interesting group, which included two small batches of Odontoglossum seedlings, each batch from a separate seed pod, and showing great diversity of character. One seedling O. × percultum might easily be taken for a white O. Pescatorei, while another sister plant was heavily marked with reddish brown markings. O. crispum var. Mr. J. McBean, O. × percultum splendens, and O. × p. var. Clive, gained Awards of Merit, the two latter being sister plants but quite distinct. Cypripedium × Mary Amelia Godefroyæ × W. R. Lee) and C. × Zampa superbum also gained Awards of Merit (Silver Medal for group).

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), gained a Silver Medal for a group of choice Cypripediums, which included a specially fine C. × Beeckmanii, good examples of C. × chrysotoxum var. Victor, C. × Dora Crawshay, C. × aureum Pomone, C. × Euryades New Hall Hey var., &c.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), sent a small group of Odontoglossums of excellent quality. O. crispum Her Majesty and O. c. Albert Warburton, both heavily blotched varieties of good shape, gained First-class Certificates, and O. c. × Princess Henry of Prussia received an Award of Merit.

G. S. Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), received a Silver Medal for a group which contained a fine pan of Cœlogyne cristata alba, a well-flowered plant of Dendrochilum glumaceum, Dendrobium × Melpomene, Cypripedium × Earl of Tankerville, C. × Hyndeanum, &c.

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), staged a group of Cypripediums and Odontoglossums which gained a Silver Medal. I noted C. × Boadicea, C. × Milo, King Edward VII., C. × Wottoni, C. × Lathamianum splendens, Odontoglossum × Lily Wilkinson, O. crispum var. Ed. Rogerson, and many others.

J. Rutherford, Esq., Blackburn (gr. Mr. Lupton), gained a Silver Medal for a bright display of Odontoglossums, Cattleyas, and Cypripediums, all well flowered.

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent Odontioda × Wardiæ (O. × ardentissimum × C. Nœtzliana), and Odontoglossum Lambeauiana var. Mrs. Ward, both of which gained Awards of Merit.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), gained Awards of Merit for Odontioda × Diana (C. Nœtzliana × O. amabile) and Odontoglossum crispum var. eboriacum. He also sent O. c. Sultan and Odontioda × Bradshawiæ (Vote of Thanks).

Norman Galloway, Esq., Great Horton, Bradford, received a Bronze Medal for a small group of Cypripediums.

Elijah Ashworth, Esq., Harefield Hall (gr. Mr. Holbrook), gained an Award of Merit for Cattleya Percivaliana var. Mr. J. Ashworth, a fine flower with a richly coloured lip.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Corser), sent the rare Dendrobium Ashworthiæ and Odontoglossum × Adrianæ var. Lady Crawford, the latter gaining an Award of Merit.

Mr. H. Arthur and the Rev. J. Crombleholme received Votes of Thanks for small exhibits.

Messrs. Sander & Sons, St. Albans, showed a group which contained many interesting hybrid Odontoglossums, the best being O. × Black Prince (Lambeauianum × Rolfeæ), being almost a pure self-colour of dark maroon chocolate. I noted a distinct O. × Adrianæ, Brassocattleya × Pluto, Pleurothallis Roezlii, &c. (Silver Medal).

Messrs. Cypher & Sons, Cheltenham, staged a very bright and effective group, in which well-flowered plants of Dendrobium predominated, the best being D. nobile Ballianum, D. n. virginale, D. n. Burford var., and a fine specimen of D. × splendidissimum. I noted a fine hybrid from Cypripedium × Mons. de Curte × Thompsonianum, also C. × aureum Surprise, Cymbidium × Veitchii, and many other choice things (Silver-gilt Medal).

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Medal for a small group of good quality, which included Odontoglossum × Phœbe,

O. × Phædra, Odontioda × Bradshawiæ, O. × heatonensis, good examples of Cattleya Trianæ, &c.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a small group of good Cattleyas, including C. Trianæ Vale Bridge var., and C. T. cœrulescens, both with white sepals and petals and a distinct shade of purple blue on the front of lip (Vote of Thanks).

Messrs. J. & A. A. McBean, Cooksbridge, received a Vote of Thanks for a small group, which included a good Læliocattleya bletchleyensis, Cattleya Trianæ, C. Schrœderæ, and a good blotched seedling Odontoglossum crispum of great promise.

Mr. J. Robson, Altrincham, Messrs. Keeling & Sons, Bradford, and Mr. W. Shackleton, Great Horton, each received a Vote of Thanks for an exhibit.

At the meeting held on March 17th a greater variety of exhibits was staged, Cypripediums being gradually displaced by Odontoglossums, Cattleyas, and the floriferous Dendrobiums. The Committee sitting were:—Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Keeling, Holmes, Ashton, Parker, Cypher, Arthur, and Weathers (Hon. Sec.).

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), set up a beautiful group of plants, all well grown and flowered. At the back were alternate plants of Dendrobium and Odontoglossum, with fine spikes, the two front rows including many fine hybrids of the latter genus (Silver-gilt Medal). O. × excellens Ward's var., a fine form of good bright yellow, gained a First-class Certificate, the same award going to a bright scarlet Odontioda Cooksoniæ, Ward's var., while O. × J. Whitmoyer (amabile × crispum), O. × Harryano-crispum, var. Emperor, O. × Hilda (amabile × Rolfeæ), and O. × Wilckeanum, Cringlewood var., all gained Awards of Merit.

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), sent a very interesting group, as usual, including many rare botanical species (Silver-gilt Medal). A First-class Certificate was given to the beautiful Cattleya Lueddemanniana Stanleyi, and Awards of Merit were given to Cattleya Schrœderæ Prince of Orange, C. S. Clifton's var., C. × Empress Frederick var. Lytham Windmill, Læliocattleya luminosa Clifton's var., L.-c. Copia (Haroldiana × Hypatia), L.-c. Haroldiana Lytham Hall var., L.-c. × Nelthorpe Beauclerk, Clifton's var., and a very fine Scuticaria Steelii, while several First and Second-class Certificates were awarded to botanical species.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Corser), staged a beautiful group of Dendrobiums, well grown and flowered, including fine plants of D. × Rubens, D. Wardianum ochroleucum, D. nobile virginale, and many other bright and effective hybrids and species (Silver-gilt Medal). D. nobile Hardy's var. gained a Cultural Certificate.

Dr. Roberts, Hale, Altrincham, also sent a floriferous group of Dendrobiums, which received a Silver-gilt Medal. I noted D. nobile virginale, D. n. Ballianum, D. n. murrhiniacum, D. × splendissimum, and many others.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a dozen plants of Lælia Jongheana, in robust health and carrying from four to six flowers each, making a bright little group (Special Vote of Thanks).

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), staged a very select little group, which gained a Silver Medal. Odontoglossum crispum Cravenianum, a fine flower with big blotches of red chocolate, and Odontioda × Corneyana (C. Nœtzliana × O. × Lambeauianum), a grand flower of brilliant scarlet, gained First-class Certificates, while Odontoglossum ×Cravenianum (cirrhosum × ramosissimum) and Odontioda × Craveniana (C. Nœtzliana × O. cordatum) received Awards of Merit.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), staged a nice group of Cypripediums, which received a Silver Medal. The wonderful lasting qualities of these flowers was exemplified by a fine C. × Beeckmanii, which had been to three previous meetings, and looked quite fresh. I noted C. × Venus, C. × Flamingo, C. × Ainsworthii, C. × majesticum, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a good group of Cattleyas, Lælias, &c. (Silver Medal). C. Trianæ var. Patrick, C. × Empress Frederick, Hey House var., and Brassocattleya × Col. J. W. Slater (parentage unknown) all received Awards of Merit.

Richard Ashworth, Esq., J.P., Newchurch (gr. Mr. Gilden), sent the fine Odontoglossum × Cyrene (crispum Graireanum × Vuylstekei), which gained a First-class Certificate, O. × Lambeauianum var. Cinderella (Award of Merit), and a good O. Cervantesii.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), gained an Award of Merit for Odontoglossum × Catherine (loochristiense × eximium).

J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith), received an Award of Merit for a blotched seedling Odontoglossum crispum var. Murillo, which should develop into a fine thing.

J. Rutherford, Esq., Blackburn, sent a small group, which included Odontoglossums, Lycaste Skinneri alba, and Cypripedium × Queen of Italy (Bronze Medal).

Messrs. Stuart Low & Co., Enfield, staged a mixed group, including the rare Ipsea speciosa, Cœlogyne pandurata, Cymbidium insigne, C. × Holfordianum, &c. (Silver Medal). Odontoglossum cordatum, Bush Hill Park var., a very dark form, and Cymbidium × Lowgrinum gained Awards of Merit, and Læliocattleya Myra var. Queen Alexandra, a bright yellow form with rich crimson lip, a First-class Certificate.

Messrs. Cypher & Sons, Cheltenham, gained a Silver Medal for a good group, which included Cypripedium × Dowlingianum, C. × aureum Surprise, C. × a. Hyeanum, many choice Dendrobiums, &c.

Mr. W. Shackleton, Great Horton, Bradford, sent a miscellaneous group, including a good Odontioda Bradshawiæ, Cypripedium Sanderianum, Dendrobiums, Odontoglossums, &c. (Silver Medal).

Messrs. Sander & Sons, St. Albans, sent a small but choice group, which included many hybrid Odontoglossums. I noted a very distinct hybrid from O. Rossii × O. Adrianæ, which reminded me of O. × Smithii (Vote of Thanks).

Messrs. Stanley & Co., Southgate, showed a fine Odontoglossum × Lambeauianum af rich colouring.

Messrs. J. Robson, Altrincham, J. Birchenall, Charlesworth & Co., and Keeling & Sons received Votes of Thanks for interesting exhibits.

H. THORP.

ODONTOGLOSSUMS FROM WALTON GRANGE.

A BEAUTIFUL series of hybrid Odontoglossums is sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens. There are two forms derived from O. sceptrum aureum × triumphans, fairly intermediate in shape, with yellow gronnd colour, heavily barred with brown on the sepals and closely blotched on the petals, while the lip has a broad red-brown zone in front of the crest. O. Hallii × Pescatorei has much of the Hallii shape, but is smaller, and and the ground colour is white, with much brown blotching on the sepals and petals, and a very fimbriate crest, as in O. Hallii, but the column wings are broad, white and slightly denticulate. The other primary hybrid is a form of O. loochristiense, with lighter yellow ground colour, and sparingly blotched with red-brown. O. crispum × ardentissimum is most like the latter, and has broad white petals, while the sepals are tinged with rose and bear a few round blotches, chiefly near the base. The lip is blotched with purple, while both the column wings and crest show the Pescatorei influence very clearly. O. crispum × Vuylstekei is a neat round flower, with pale yellow ground colour and numerous red-brown blotches on the petals, while the broad lip is yellow with a few brown blotches. O. × Adrianæ × Pescatorei has somewhat acuminate, white sepals and petals, copiously blotched with dark brown, and a broad white lip with a few blotches round the crest, which latter shows much of the Pescatorei influence. The column wings are broad, denticulate, and blotched with brown on the margin. O. × Wilckeanum × crispum has a light yellow ground colour, with a few large red-brown blotches on the sepals and petals, and a few small ones on the lip. Had it been a wild plant it

would have passed for a form of O. × Wilckeanum. O. × Andersonianum × luteopurpureum has a light yellow ground colour, heavily barred with dark brown on the sepals and more blotched on the petals. The lip is broad at the base, and very acuminate above, with one large blotch in front of the crest. It much resembles a form of O. × mulus. The next flower might be described as a light yellow O. crispum with a tinge of rose in the sepals and three or four small red spots in front of the lip's crest. It is said to have been raised from a pale O. crispum crossed with a deeper coloured one that used to fade. Two or three seedlings are said to have flowered, and all keep their colour. The yellow colour suggests that there is some yellow-flowered species in its ancestry. A panicle of the beautiful Odontioda Vuylstekeæ is also sent, bearing four side branches and an aggregate of 23 flowers. Mr. Stevens remarks that it has been out for six weeks, and is the lightest-coloured form they have. It has a light yellow ground colour, with large light red blotches, which cover about half its area. They form a most beautiful series, and all were raised in the collection.

ORCHIDS IN SEASON.

Several beautiful flowers are sent from the collection of Walter R. Scott, Esq., Crieff Villa, Craghead, Durham. They include a fine Dendrobium Wardianum, and a smaller form with white sepals and petals and the usual dark blotches on the lip, two forms of the pretty little rhubarb-scented D. Parishii, D. nobile, D. × melanodiscus, and the fine D. × Ainsworthii splendidissimum, with an allied hybrid having very undulate segments. There are also two forms of Odontoglossum crispum, a good typical O. Pescatorei, and a prettily spotted O. × Andersonianum, with a small Cœlogyne flaccida, and what would be taken for a form of Paphiopedilum Appletonianum but for its strongly tesselated leaves. We believe that it came out of an Annamese importation. The collection now includes over 1,500 plants.

Two forms of the charming little Lælia × Degeestiana are sent from the collection of E. F. Clark, Esq., of Teignmouth. They are believed to be seedlings from a packet of seed obtained from Messrs. Keeling, in the spring of 1902, with the record L. flava × Jongheana. Seed of the reverse cross was also obtained, but it is believed that none of this germinated. One flower has cream-white sepals and petals, and a very undulate, bright yellow lip, with a deep golden yellow throat. The spike produced four flowers. We should refer it to the variety La Perle. The other form has rather more elongated sepals and petals, which are tinged with mauve, while a little of the same colour appears on the front and side lobes of the lip. This plant shows rather more of the L. Jongheana character.

Mr. Clark mentions two or three other interesting L. Jongheana hybrids which he hopes to flower shortly. He also adds that the two flowers of Læliocattleya Ursula mentioned at page 94, though so distinct, were off the same inflorescence.

Flowers of five seedling Dendrobiums, now flowering for the first time, are sent from the collection of James Geddes, Esq., of Ascot. They were obtained from a friend who has given up Orchid growing and who had unfortunately lost their parentage. If all are from the same cross—and we are not clear on this point—we should suggest D. × Ainsworthii and D. nobile, for two of the flowers are quite suggestive of D. × Rubens, that is to say very near but not quite true D. nobile, a third is like a large, richly-coloured D. nobile, with a very long trumpet-shaped lip, a fourth is almost D. × Ainsworthii in shape and colour, and the fifth has a distinct flush of light yellow in the flower, with almost the nobile shape, but a reduced magenta-purple disc. The last-mentioned flower shows an approach to D. × Wiganiæ rather than to D. aureum, hence a suspicion that all may not be from the same cross. A large and richly-coloured flower, which we take to be D. × Rubens grandiflorum is also enclosed. This was obtained under another name, which proves erroneous.

A flower of the handsome Cymbidium × Lowgrinum, Pitt's var., that received an Award of Merit from the R.H.S. on March 8th last, is sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill. It is much darker than the original form, having red-brown sepals and petals, and some dark blotches on the lip. A flower with nearly green sepals and petals, that came out of the same seed pod, is also enclosed. Inflorescences of the rose-coloured Dendrobium Kingianum and of the plant known as D. Kingianum album are also sent. This latter is from the type plant figured in the *Orchid Album* (vii. t. 332), and is now known to be a white form of D. × delicatulum, Bailey, a natural hybrid between D. Kingianum and D. speciosum, whose history was given at page 88 of our sixteenth volume.

A flower of Læliocattleya stamfordiensis, a small seedling flowering for the first time, was afterwards sent. Mr. Thurgood remarks:—"We had an unnamed seedling from Lælia tenebrosa × cinnabrosa, and this was crossed with the pollen of Læliocattleya Ingramii, Rosslyn var., and the flower sent is the result. When the plant becomes strong the flower, I think, will be good." It is certainly very promising, as the shape is good, and the sepals and petals rose-purple, with a rich claret-purple lip. The influence of the pollen parent is very obvious, but there is no trace of the original yellow of L. cinnabarina.

A flower from Bifrenaria Harrisonæ var. pubigera is sent from the collection of P. C. P. Lupton, Esq., Southminster, Essex. It differs from

the type in having the flowers suffused with purple and in the rather smaller size. The plant was introduced from Brazil, and is said to flower profusely.

A flower of a pretty little hybrid Dendrobium, obtained from D. × Rubens and D. Aurora, is sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. The sepals and petals are tipped with rosy purple, and the disc of the lip is dark maroon. It bears a general resemblance to D. × melanodiscus, and, like D. × Magda, is made up of the same three species, D. nobile, aureum, and Findlayanum, though in slightly different proportions.

A flower of Paphiopedilum Appletonianum is sent from the collection of Walter Norgrove, Esq., Clifton, Bristol, together with one of the natural hybrid P. × siamense, which flowered out of the same imported clump. Mr. Norgrove remarks: "I bought an unflowered imported plant, and one of the growths produced the larger flower; the other parts of the plant produced flowers like the small one." The other parent is P. callosum, and the history of the hybrid, with figures of the plant and its parents, have already been given (*O.R.*, xi. pp. 44-46, fig. 11).

A flower of Phragmopedilum caudatum × Sedenii is sent by His Honour Judge Philbrick, Bodorgan House, Bournemouth. It has rather more attenuated petals than P. Schrœderæ, but should be a form of it, and is very similar in its rich red-purple colour. The scape bears two flowers. A flower of Paphiopedilum villosum var. annamense is also sent, which differs markedly from the typical form in having a broad white margin to the dorsal sepal.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held in the Royal Horticultural Hall, Vincent Square, Westminster, during April, on the 5th and 19th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for May 3rd.

It is announced that the Royal Agricultural Society have withdrawn their suggestion that a Show should be held under the auspices and organisation of the Royal Horticultural Society in connection with the visit of the former to Liverpool in June next, and the announcements in the Book of Arrangements are in consequence cancelled.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on April 7th and 21st. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for May 5th.

ORCHID PORTRAITS.

DENDROBIUM × MRS. FENTON ARNTON.—*Gard. Chron.*, 1910, i. p. 149, fig. 64.

DENDROBIUM × RUBENS GRANDIFLORUM.—*Gard. Mag.*, 1910, p. 206, with fig.

LÆLIOCATTLEYA GOLDFINCH, WESTONBIRT VAR.—*Journ. Hort.*, 1910, i. p. 255, with fig.

NOTYLIA TRISEPALA, Lem.—*Bot. Mag.*, t. 8306.

ODONTOGLOSSUM × CRAVENIANUM.—*Gard. Mag.*, 1910, pp. 211, 214, with fig.

ODONTOGLOSSUM × EXIMIUM VAR. E. C. ROGERSON.—*Journ. Hort.*, 1910, i. p. 211, with fig.

ODONTOGLOSSUM × GLADYS.—*Gard. Mag.*, 1910, p. 253, with fig.

ODONTOGLOSSUM × LAMBEAUIANUM.—*Journ. Hort.*, 1910, i. p. 200, with fig.

ODONTOGLOSSUM × SPLENDENS.—*Gard. Mag.*, 1910, p. 191, with fig.

ODONTOGLOSSUM × THOMPSONIANUM, GATTON PARK VAR.—*Journ. Hort.*, 1910, i. p. 277, with fig.

PHAIOCALANTHE × BARON SCHRÖDER.—*Journ. Hort.*, 1910, i. p. 233, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

A. C.—The name is correct. Paphiopedilum × aureum is remarkably variable, and P. × a. Œdippe is a form that has much purple suffusion on the dorsal sepal, with a deep purple median band. A comparison with P. × Lathamianum will show that it is quite distinct.

P. C. P. L.—1, Cœlogyne cristata. 2, Bifrenaria Harrisonæ var. pubigera.

J. M.—We think that such plants can only be named as florists' flowers.

G. K. G —We believe the first record is correct. The point is that the influence of Cattleya bicolor, one of the original grandparents, is not apparent in the secondary hybrid. We will try to put it right later.

A. C., J. McC., and others.—Unavoidably postponed until next month.

CATALOGUES RECEIVED.—We have received the illustrated Catalogues of Orchids issued by M. Otto Beyrodt, Marienfelde, Berlin, and of MM. Theodore Pauwels & Cie, Meirelbeke, Gand, both containing an extensive series of cultivated Orchids, with prices.

ONE AND ALL GARDEN BOOKS, received from the Agricultural and Horticultural Association, 92, Long Acre, London, W.C. : FRUIT, by W. Iggulden ; PANSIES, by James Riding ; and ROOTS, by the Hon. A. Stanhope. Price one penny each, and all well illustrated.

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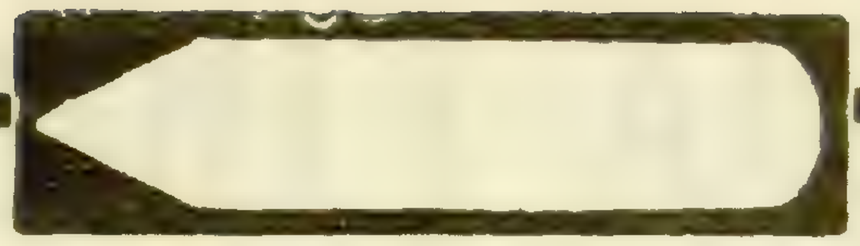

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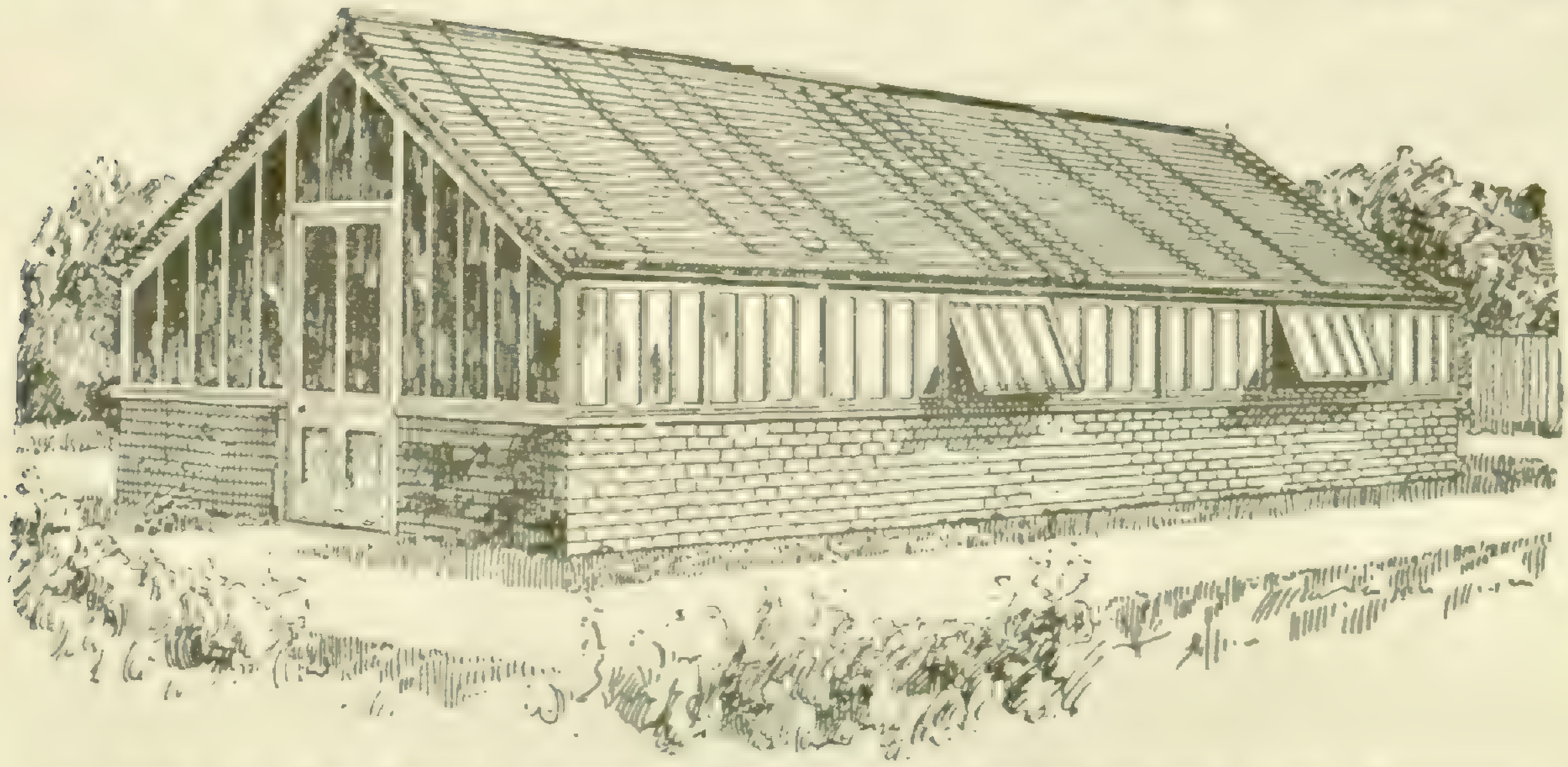

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VOL. XVIII.] MAY, 1910. [No. 209.

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *MAY*, 1910. [No. 209.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 99.)

THE subtribe Cœlogyneæ, using the term in a more restricted sense than was done by Bentham, has many points of resemblance to Malaxeæ (which now includes Liparideæ). In fact Bentham remarked:—"The distinction from Liparideæ is not so easily expressed in words." He also included Platyclinis in Liparideæ, while Pfitzer has transferred it to Cœlogyneæ, re-uniting it to Blume's genus Dendrochilum, from which Bentham had separated it. Pfitzer limits the subtribe Cœlogyneæ to Cœlogyne, Pleione, Panisea, Otochilus, Pholidota, Dendrochilum, and a few small genera, mostly separated from Cœlogyne. The species are epiphytic and pseudobulbous, with a spicate or racemose, usually distichous inflorescence, a three-lobed spurless lip, and four pollen masses tapering into points or short caudicles, and connected after dehiscence by a viscous exudation from the rostellum.

Cœlogyne is a large and rather polymorphic genus, containing over 70 species, several of which are popular garden Orchids, and a good many others are frequently met with in cultivation. Pholidota is much like a reduced form of Cœlogyne, characterised by its small flowers, short column, and the very concave or saccate base of the lip. Otochilus is also nearly allied, but has very narrow sepals and petals, a slender elongated column, and a saccate base to the lip. Pleione differs from the others in its deciduous habit, differently shaped annual pseudobulbs, the entire, often fringed lip, and general floral structure. The species, about ten in number, are natives of India and China, and over half of them are known in cultivation. Panisea and two or three of Pfitzer's genera are separated from Cœlogyne by very slight characters. Dendrochilum has small, very numerous, green, white, or nearly yellow or brownish flowers, which are borne in rather crowded distichous spikes, in this respect recalling the small section Distichæ of Liparis, which is very seldom seen in cultivation. There are two distinct sections in the genus, one having elongated climbing stems, and distant one-leaved pseudobulbs, the other with very short rhizomes, so that the small pseudobulbs appear to be tufted. The former section is practically unknown in cultivation; the latter was separated by Bentham

under the name of Platyclinis, and now consists of over eighty species, a large number of novelties having recently been described from the Philippines by Mr. Oakes Ames. Several of the species are well known as very graceful garden plants.

The remainder of the Cœlogyneæ have been placed elsewhere by Pfitzer, but as, with the exception of Calanthe, they are scarcely known in cultivation they may be passed over. They are mostly from the great Indo-Malayan region. Calanthe is more allied to the Phaius group, where Pfitzer places it, together with Bletia, Chysis, Acanthophippium, Tainia, Spathoglottis, and a few others, some of which are included in Erieæ by Bentham. They have many points in common.

The group contains terrestrial and epiphytic species of very various habit, but they agree in having eight pollen masses, usually more or less connected at their points by a pollinary appendage and some viscus from the rostellum. Several of the genera have a distinct foot to the column, which is sometimes united to the lateral sepals, forming a mentum, while in Calanthe the lip has usually a long spur at the base. The group is very widely diffused. Bletia and Chysis are American, Calanthe is found throughout the Tropics, Phaius occurs from India and China to Australia and again in Africa, Ancistochilus is only African, and the rest are Indo-Malayan.

The position of Thunia is obscure. Reichenbach considered it to be a genus of Arethuseæ, but Bentham united it with Phaius, while more recently Pfitzer has associated it with Arundina, Bletilla and Trichosma in a small group called Thuniinæ. The fact is that the real affinities of some of these genera have not been accurately worked out.

Spathoglottis, Pachystoma and a few others were by Bentham associated with Eria and Phreatia in the subtribe Erieæ, but the two latter are placed by Pfitzer near to Dendrobium, because of the resemblance in habit, and the union of the lateral sepals to the foot of the column, forming a mentum; yet they are constantly different in having eight pollen masses, with their points more or less connected together. Eria is a very large and polymorphic chiefly Indo-Malayan genus, of which a few species are frequently met with in cultivation. The flowers are generally hairy. Phreatia has very minute, white or greenish flowers, and is chiefly known from dried specimens. It has a similar distribution except that there are several Polynesian species.

Of the Old World Epidendreæ there now remains the subtribe Dendrobieæ, as defined by Bentham. In this there are either four collateral, more or less parallel and compressed pollen masses, without points or caudicles, or sometimes the four are reduced to two, by the more or less complete union of the two in each cell. The inflorescence is usually lateral, and the base

of the column is extended into a foot, which is often much elongated, and to which the lateral sepals are often united at the base, forming a mentum. The lip is attached to the foot of the column, usually fixed in Dendrobium, but very delicately articulated and mobile in most of the other genera. Though varying in habit, it is generally easily recognised by the characters pointed out. The primary stem or rhizome may be very short, or elongated and creeping, and the secondary stems elongated and slender, with numerous distichous leaves, or variously thickened into pseudobulbs, sometimes very short, and bearing one, two, or very few leaves. We may now mention a few of the principal genera.

Dendrobium, as now defined, is a very large and polymorphic genus, containing probably over 500 species, and ranging from North India and China through the Malayan Archipelago to Australia and Polynesia. The rhizomes are often short, giving rise to numerous elongated and slender or variously thickened stems, and bearing numerous distichous leaves, but occasionally the rhizomes are more elongated and creeping, and the pseudobulbs shorter and stouter, and bearing two or three apical leaves, sometimes only a single leaf. The leaves are sometimes equitant, as in the Aporum section, and sometimes terete and even much thickened and fleshy, as in the Australian D. linguiforme and D. cucumerinum. The inflorescence is usually axillary, but sometimes terminal, and the flowers vary enormously in size, shape and colour, many of the species being purple, white, greenish or yellow, and sometimes variously marked. The foot of the column is always more or less developed, and the lateral sepals are united to it, forming a variously-shaped mentum, often very long and spur-like in the section Pedilonum. The lip is generally firmly fixed, but occasionally mobile, as in D. herbaceum and a few others. Dendrobium is one of the most popular of garden genera, and a large number of species are well known in cultivation, but probably a greater number are either not known or very rarely seen in gardens. The flowers of the section Desmotrichum and a few others only last a single day. Among remarkable features seen in cultivated species of the genus may be mentioned the remarkably fringed lip of D. Bryerianum, the similar petals of D. Harveyanum, and the mossy pedicels of D. macrophyllum.

Bulbophyllum may be regarded as the type of a group of allied genera which approach very near to Dendrobium, though generally differing in habit and in having an articulated, mobile lip. The difference is not quite absolute, because a few Dendrobiums have a distinctly mobile lip, and a few others closely resemble Bulbophyllum in habit. In Bulbophyllum the pseudobulbs are borne upon a short or elongated rhizome, and are ovate, angled or somewhat elongated, with one or two leaves at the apex, but sometimes the pseudobulb is not developed, and the leaves appear to come

from the rhizome direct. The inflorescence is axillary, and the flowers are borne in spikes, racemes, or umbels, and are very various in structure and colour. The mobile lip is articulated to the foot of the column, and is so delicately balanced that insects alighting on it are precipitated against the column, and thus serve to remove the pollinia, which in turn are left on the stigma of the next flower visited. The lip is usually fleshy, but in some cases it is hairy, as in the well-known B. barbigerum and a few others. The genus is diffused through the tropics, ranging from North India and Japan through the Malayan Archipelago to Australia and New Zealand, while a considerable number of species occur in Africa, the Mascarene Islands and Tropical America. Upwards of 300 species are known, and several very striking ones are in cultivation.

Cirrhopetalum is sometimes united with Bulbophyllum, because of the difficulty of distinguishing the two by absolute characters. In the majority of the species the flowers are borne in a whorl, and the lateral sepals are much elongated and often united together. The genus extends from North India to Polynesia and Madagascar, and over fifty species are known, several of which are important garden plants.

Megaclinium is an exclusively African genus of over thirty species, which is sometimes united with Bulbophyllum on account of the general similarity of the flowers. Its remarkable feature is the dilated and usually flattened rachis, the flowers being borne in a row on either side. The rachis varies considerably in shape in the different species, in some being small and fleshy, in others much dilated and thin or somewhat fleshy.

Ione has precisely the habit of Bulbophyllum, but differs in having a fixed lip, and the pollinia attached to a gland, which character led Sir George King to remove it, with one or two others, to Vandeæ. The genus is Indian, and contains about ten species.

Monomeria and Drymoda are remarkable Indian genera which are seldom seen in cultivation. The foot of the column is enormously elongated, and the lateral sepals are inserted on the foot at a considerable distance from the dorsal sepal. In Monomeria the petals are also inserted on the foot of the column, and reduced to a few dwarf teeth. The flowers are borne in racemes. Drymoda picta has a very similar structure, but has single-flowered scapes, in fact the plant has almost exactly the habit of Eria extinctoria. It is figured at t. 5904 of the *Botanical Magazine*. The genera Collabium and Chrysoglossum, referred here by Bentham, have radical leaves and inflorescenca, and probably belong elsewhere.

The large American subtribes Pleurothalleæ and Epidendreæ must be left for a future paper.

R. A. ROLFE.

(To be continued.)

OBITUARY.

BARON SIR HENRY SCHRÖDER.—Horticulture has sustained a great loss by the death of Baron Sir John Henry William Schröder, C.V.O., V.M.H., of The Dell, Englefield Green, which took place at the Victoria Hotel, Sidmouth, on April 20th, at the advanced age of 85. The deceased was head of the well known firm of bankers, J. H. Schröder & Co., Leadenhall Street, London, and was born in February, 1825. His ancestors were Hamburg merchants, but the family have been naturalized in England since 1864. In 1883 he succeeded to his father's title of Baron von Schröder, a Prussian creation of 1868, and in 1892 he was made a baronet of the United Kingdom.

The deceased was a great lover of Orchids, and commenced his collection in 1866 with a few small bits given to him by S. Rucker, Esq. of Wandsworth, a celebrated collector in his day. The number soon increased by purchase, and the collection rapidly became one of the most famous in the country, for the Baron was a great enthusiast, and spared neither pains nor expense in adding to it the choicest forms obtainable, in fact, his name was constantly associated with high or record prices for Orchids. It was in 1881 that he purchased two plants of the remarkable Cypripedium Stonei platytænium from the collection of Mr. John Day for 130 and 120 guineas respectively, the best plant being acquired by Sir Trevor Lawrence, and in these two collections it is still only to be found. In 1883 Odontoglossum Pescatorei Schrœderianum was named after the Baron by Reichenbach, having been purchased from Mr. F. Sander for seventy guineas. The still finer O. P. Veitchianum was already at The Dell, and both remain there unique to this day. The collection was now famous, for we find a reference to Baron Schröder's extensive and well-managed collection.

It was about this time apparently that he began to exhibit at the meetings of the R.H.S., and the Society's list of awards shows that on September 11th, 1883, Mr. Ballantine received a First-class Certificate for Vanda insigne Schrœderiana, while on December 11th of the same year Cypripedium × Schrœdereæ received a similar award. The number increased to something like ten in 1884, and among the names we find such sterling things as Lælia callistoglossa, Aërides Lawrenceæ, and Odontoglossum crispum varieties. Ballantinei, dellense, Veitchianum, and flaveolum. Since that period an enormous number of handsome Orchids have been certificated from The Dell collection, the last being Phaiocalanthe Baron Schröder as recently as March 8th of the present year.

At the first Temple Show in 1888, we find the Baron at the head of the competitive classes for Orchids, gaining a Silver Cup, and a magnificent

group from The Dell was a regular feature of these Shows down to 1895, after which his name dropped from the list. But he still continued to exhibit occasionally at the ordinary meetings of the Society. Among the numerous fine species exhibited we recall the remarkable plant of Cœlogyne Dayana bearing twenty-two of its graceful racemes and over 800 flowers, which gained a Silver Flora Medal and a First-class Certificate at the Temple Show in 1894, and which was even finer in the following year, when it bore twenty-four racemes and about 930 flowers.

Several interesting hybrids were raised in the collection, three of the best, in the opinion of Mr. Ballantine, being Calanthe × Baron Schröder var. superba, Cypripedium × Maudiæ, Schröder's var., and Phaiocalanthe Baron Schröder, none of which have been distributed. Other uniques in the collection, besides those previously mentioned, are Cattleya iricolor, Rchb. f., the remarkable C. × lamberhurstensis, a hybrid from C. intermedia and C. citrina, Phalænopsis × John Seden, and the beautiful varieties of Odontoglossum crispum known as apiatum, Baroness Schröder, Ballantinei, Veitchianum, Sanderianum, Rex, Wolstenholmiæ, and Prince of Wales. The original plant of Odontoglossum × excellens, which was exhibited at the Orchid Conference in 1885, is still at The Dell, also the original plants of Lælia anceps Schrœderæ, Læliocattleya bella, L.-c. Veitchiana, L.-c. eximia, Cattleya × Empress Frederick, Miltonia vexillaria memoria G. D. Owen, and others, which speaks eloquently of the ability of Mr. Ballantine and his assistant, Mr. Clark, who have for so long had the care of them, and who may almost be said to have grown up with the collection.

The Baron was always a great lover of Orchids and retained his enthusiasm to the end. He purchased his last plant only five weeks before his death, a very fine blotched Odontoglossum crispum, the variety being named Baron Bruno Schröder, after the Baron's nephew.

For nearly thirty years the Baron was a most generous patron of Horticulture, and one of the greatest supporters of the Royal Horticultural Society. He first joined the Council in 1886, and has been for many years one of the Vice-Presidents. He was one of the staunchest supporters of the Hall Scheme, and indeed has been termed the Father of the Hall. He was Chairman of the Committee appointed to find a suitable home for the Society, and secured the option of the site at Vincent Square, on which the Hall was ultimately erected. He issued a strong appeal for donations, himself giving £5,000 out of the £40,000 required, and he had the happiness of seeing the scheme brought to a successful conclusion. In July, 1904, the Hall was opened by His Majesty the King. Baron Schröder also undertook the entire expense of fitting the room for the housing of the Lindley Library and of removing the books, a fact commemorated by a brass tablet over the Library door. He was a life subscriber to the Royal Gardeners'

Orphan Fund, and a Vice-President of the Gardeners' Royal Benevolent Institution, to which he contributed a very handsome donation when an effort was being made to increase its funds. In 1893 he presided at the annual festival of the Institution.

Among the beautiful Orchids which will commemorate the Baron's name we may mention the rare and striking Miltonia Schrœderiana, Masdevallia Schrœderiana, Cattleya Schrœderiana, and Cypripedium × Baron Schröder.

The funeral took place at the Cemetery, Englefield Green, on Thursday, April 28th, and was attended by Sir Trevor Lawrence, President of the Royal Horticultural Society, and other representatives of horticulture.

MEMORIAL TO BARON SCHRÖDER.—Instead of sending to Baron Schröder's funeral a wreath of flowers which would fade in a day, the secretary of the Royal Horticultural Society will advise the Council to establish a Pensionership of £20 a year, for five years, under the regulations of the Gardeners' Royal Benevolent Institution, "In memory of Baron Schröder."

WILLIAM DENNING.—Another of the older generation of Orchidists passed away on April 2nd in the person of Mr. William Denning, who for so many years had charge of the fine collection of Orchids of Lord Londesborough, at Grimston Park, Tadcaster. He commenced his gardening career about 1850, and after gaining experience in various places, including Kew, which he left in 1856, he was appointed head gardener to Lord Londesborough, whose Orchid collection was once famous. Here it was that, in 1876, he succeeded in flowering, for the first time in England, the remarkable Odontoglossum Londesboroughianum, a plant which still puzzles most of those who possess it. Another plant described from the collection in 1872 was Odontoglossum Denisonæ, and which Mr. Denning considered to be a natural hybrid between O. crispum (with which it was imported) and O. hystrix. Mr. Denning was a very skilful grower of plants and fruit, and a frequent exhibitor at the meetings of the R.H.S. in the seventies and eighties. He was subsequently with the Londesborough family at Kingston Hill, Surrey, and about 1887 he settled at Hampton, Middlesex, as a market florist. For fifteen years he was an active member of the Hampton Urban District Council, and was taken ill with a paralytic seizure after speaking at a meeting held on March 8th, from which he never recovered. He reached the age of 75 the day before his death. He took an active part in forming the Royal Gardeners' Orphan Fund, and up to the time of his death was a member of the Gardeners' Royal Benevolent Institution. His name is commemorated in Lycaste Denningiana, a striking Ecuadorean species named after him by Reichenbach in 1876.

ORCHIDS FROM FINCHLEY.

SEVERAL beautiful Orchids are sent from the collection of G. Hamilton-Smith, Esq., Finchley, by Mr. Coningsby. There are three distinct forms of Cattleya Mendelii, two with blush pink sepals and petals, one of them with a very rich purple front lobe to the lip, contrasting very effectively with the pure white side lobes. The other has the front lobe of the lip rose, covered with whitish reticulated veins, and the rest of the flower white except for the yellow disc. There is also a form of C. Trianæ, and a richly coloured C. Lawrenceana with the front lobe of the lip very broad for the species. Lycaste Skinneri var. Mrs. G. Hamilton-Smith is a large and beautiful form which was noted a year ago. The rest are Odontoglossums, and form a charming series. There is a fine typical O. crispum, and three spotted forms, all of which are probably hybrids. One has a rosy ground and many purple spots and dots on the sepals and petals, with larger blotches on the lip; another, which is flowering for the first time, shows a decided approach to O. × Andersonianum in the shape and spotting of the segments; and the third has a white ground, very regularly blotched with red-purple on all the segments, and looks as if partly derived from O. × Adrianæ. Another spray is from a plant that was obtained without a name. It recalls in most respects a hybrid between O. Pescatorei and O. sceptrum, but in the absence of information whether it is of wild or artificial origin it is difficult to identify it with certainty. The others are a good form of O. pulchellum and a handsomely blotched O. × Rolfeæ with a yellow ground colour. They show evidence of good culture.

EPIPHRONITIS VEITCHII.—This is a pretty hybrid between Sophronitis grandiflora and Epidendrum radicans, mostly resembling the latter parent, but the habit is dwarf, as it only attains a height of 1ft. or 18in. The individual flowers are similar to those of E. radicans, but slightly larger and a deeper crimson. To grow this unique plant successfully it must be frequently propagated after flowering by cutting the stems through below a few roots, and then potting several pieces into a compact specimen. Either pots or pans may be used, the latter being chosen if it is desired to suspend the plants, but after disturbance at the base they must not be over-done with water. A light position in the Cattleya house, or where Epidendrum radicans thrives will suit it, and an occasional spray over-head will promote healthy growth with freedom from insect pests. Anything approaching a stuffy atmosphere must be guarded against, or the black spot appears on the foliage, which not only retards and disfigures every shoot, but often means the loss of the plant.—T. Anstiss in *Journal of Horticulture.*

CALANTHE × BRYAN.

THE photograph of Calanthe × Bryan here represented was sent by Mr. W. P. Bound, formerly gardener to Sir Jeremiah Colman, Bart., to illustrate the system of growing Calanthes singly in small pots, a method preferred by him because the plants have then a better chance of getting the proper share of light. Mr. Bound prefers four to six inch pots, according to the

Fig 10. CALANTHE × BRYAN.

size of the bulb, and a drainage of rather less than a third of their depth. The compost used consists of two parts loam and one part good leaf mould, with plenty of coarse sand and small crocks to keep it open. About two inches of the old roots are left to keep the bulb securely in its place, and in the case of the long bulbed kinds a neat stake is added. The compost should be moderately dry when used, and the plants should be potted firmly. When

potted a sunny position in a warm and humid house is given, and very little water is required until the growths are well away and the leaves begin to unfold, after which the supply should be increased. A light position should be chosen, with moderate shading from strong sunshine. When grown in this way from two to five strong spikes are obtained from each pot, and the plants can be very easily arranged for decorative purposes.

Calanthe × Bryan is a hybrid which was raised in the collection of the late Mr. N. C. Cookson from C. vestita and C. Regnieri, and thus is a form of C. × Darblayana which was raised by M. Ch. Maron a few years earlier. The flowers are white with a dark purple eye.

CALENDAR OF OPERATIONS FOR MAY.

By W. C. PRICE, Oakdene, West Didsbury.

THE plants in all departments are now growing freely, and every encouragement should be given to help them to grow briskly. The temperatures should be kept as nearly as possible to the figures given below whenever the atmospheric conditions are at all summer-like, but if a cold spell should occur, which often happens during May, and even June, a few degrees lower is preferable to an excessive amount of fire-heat.

TEMPERATURES, for the next four months, without sun-heat, should be as follows :—

Cypripedium House: Day, 75° to 80°; night, 75°; morning, 70°.

Cattleya House: Day, 70° to 75°; night, 70°: morning, 65°.

Intermediate House: Day, 68° to 70°; night, 68°; morning, 63°.

Odontoglossum House: Day, 60° to 65°; night, 60°; morning, 58°.

SHADING.—Where lath blinds are used, it will be necessary to use a second shading during the hottest months of the year, so as to avoid having any plants scalded by the sun, which can easily occur where the sun shines directly between the laths. It does not require a thick shading, or one that remains dark on a dull day. There are numerous methods of shading the glass, such as summer cloud, &c., but the method we use, and find very satisfactory, is as follows: Take two balls of whitening, half a pound of size, in powdered form, and one pint of linseed oil. Put one gallon of water in a receptacle capable of holding about two gallons, and boil it; then reduce the whitening to a powder and stir in gradually, lastly adding the size and oil. The whole of the ingredients should be added while the water is boiling, and kept well stirred, being afterwards thinned down to requirements with cold water. If allowed to stand for a day or two, it should be boiled up again before using, as the oil floats to the top and cannot be mixed again without doing so. This mixture sticks well to the glass for the summer, but is no trouble to get off in the autumn when no longer required.

CATTLEYAS.—C. Lawrenceana is now in flower, and should have copious supplies of water till the flowers are off, when they should be kept well on the dry side till the young growths are well away. This beautiful old species thrives best when grown in a warm position with a free circulation of air. I saw a grand batch of them near Burton-on-Trent about five years ago. They were placed on a centre stage, facing a doorway between two Cattleya houses, one being cooler than the other. They were in six and seven inch pots, and had stout bulbs over one foot in height, and carrying four and five trusses of flower on each plant, ranging from ten to eighteen flowers on each truss. The door was always left open, causing a constant circulation of air. Since seeing them I have always tried to place mine where they get plenty of air, and find that that is what they like, for I have found a marked improvement in them every year since trying it. C. intermedia will now be passing out of flower, but the supply of water should not be reduced till the growth is quite made up. A mistake often made by beginners in Orchid cultivation is that of treating all Cattleyas alike, and reducing the supply of water of those that flower before the young growth is fully made up, as well as those that make their bulbs and rest before flowering. C. Schrœderæ, C. Mendelii, C. Mossiæ, and many of their hybrids are now in flower, and should have plenty of water till the flowers are off, when they must be kept on the dry side till the young growths are well started. They may then be repotted, using the compost as recommended in February. After repotting they should be placed in a shady position, and plenty of moisture kept around them, but care should be taken not to give them much water at the root till they are well-established again.

DENDROBIUMS.—D. Phalænopsis is a plant that requires much attention as to potting. The growths should be allowed to get about three inches high before repotting, and not till then should they be touched. Where they are grown in quantity some were ready for repotting last month and some now, while others may not be ready till early in June. It pays to wait till they are ready. If the compost is sweet and sound, and they have room to make the new growth, leave them alone, but if repotting is necessary perforated pans that can be suspended from the roof are the best for them. The pans should be large enough to hold them two years, as they do not like to be disturbed too often. We find that they do best in a compost consisting of half of each of good fibrous peat and sphagnum moss, well mixed together and pressed in moderately firmly. They should be grown in the hottest portion of the house. I have often seen them do extremely well when grown in the ordinary plant stove. After repotting only sufficient water should be given to prevent them from shrivelling until they are well rooted, when they should have copious supplies till the

flowering season is over. The same treatment applies to D. bigibbum and D. superbiens.

LYCASTES.—L. Deppei, L. leucantha, L. aromatica, L. × Tunstillii, L. × Balliæ, L. Skinneri and its various varieties will now be ready for repotting. A good compost for these consists of one-third each of fibrous loam, peat, and sphagnum moss. The compost should be in a fairly rough state, and well mixed together. Use pots large enough to last them two years. Fill the pots about one-third full of crocks for drainage, and pot moderately firmly. They should be placed in a shady part of the Intermediate house, and till they get well rooted only sufficient water to keep them from shrivelling should be given, but when well rooted they require copious supplies till the bulbs are finished. If there are a number of bulbs without leaves they may be cut off, leaving four behind the lead to form the plant. Choice kinds may be increased as follows: the old bulbs should be placed rather low down in a pot just large enough to hold them, with a few crocks at the bottom, then put sphagnum moss round them so as to reach about half way up the bulbs. They should then be placed in a moist and shady corner where they will be out of the way. They often break away very quickly, though sometimes it is quite two years before they do so, but a good variety is well worth waiting for.

ODONTOGLOSSUMS should now be kept as cool as possible. It is impossible to keep the temperature at any stated figure during the four hottest months, but much may be done by judicious shading, damping and ventilation. The use of fire-heat can be dispensed with during the day-time, but for the next week or two sufficient to take the chill off the pipes may be used at night, as it will save the flowers from getting spotted, which they quickly do when the pipes are cold at night. Sufficient bottom ventilation may be used to counterbalance the small amount of fire-heat necessary. O. grande and O. Insleayi leopardinum, after having had a good rest since making up their bulbs last season, by having been kept on the dry side through the winter, are now making new growths, and should be attended to. Repotting should now be done, using the polypodium compost as recommended in January. Water should be sparingly applied till the young roots are well into the compost, when the supply can be gradually increased to meet requirements. Those that do not require repotting should be stood in a pail of water and allowed to have a good soaking, to make sure that the compost is moistened right through. They should then be allowed to get nearly dry before watering again in the usual way, but should never be allowed to get quite dry at this season.

SOBRALIAS.—Many of these are now showing for flower, and if at all root-bound they may be occasionally watered with weak liquid cow manure, which will be of benefit to them whilst developing their flowers. There are

now many beautiful hybrids of Sobralia, and this class of plant deserves to be more widely grown than is the case at present. They are easy of cultivation, and will grow in any warm house where they can have a little shade.

STANHOPEAS can now be attended to. Any that require a larger basket should be carefully taken out, and as much as is necessary of the old compost pricked away with a pointed stick. Then place the plant in a suitable-sized basket without any crock at the bottom. A suitable compost for them is half good fibrous peat and sphagnum moss, or Osmunda fibre may be used instead of peat if preferred. They should be made firm, but should not have the compost pressed too hard. They grow well when suspended from the roof at the warm end of the Cypripedium house, and carefully watered till the young growths are well advanced.

ZYGOPETALUMS.—*Z.* Makayi, *Z.* crinitum, and others of the strong growing kinds will now require repotting. They require ample rooting space, but should not be over-potted. A suitable compost for them is composed of one-third each of fibrous loam, peat and sphagnum moss, well mixed together, and in a fairly rough state. After repotting they should be placed at the warm end of the Intermediate house and be well shaded. When well rooted they require copious supplies of water, and during the summer months like plenty of syringing. Be careful that the water does not lodge in the centre of the young growths, or they will quickly rot. *Z.* maxillare (Gautieri) does best when grown in a basket and suspended from the roof, or in a pot with a teak raft fixed upright and covered with compost for it to run up. I find that this variety does best when peat and sphagnum moss alone is used for compost, and grown at the cool end of the Cattleya house.

ORCHIDS AT THE MISSOURI BOTANIC GARDEN.

THE Orchid collection at the Missouri Botanic Garden, St. Louis, U.S.A., is, of course, a botanical one. It includes about a thousand species and varieties, such genera as Epidendrum, Schomburgkia, Catasetum, Chysis, Vanda, Stanhopea, Cattleya and Cypripedium being well represented. The climatic conditions here are admirable for the Warm-house varieties, but for the Cool-house Odontoglossums and Masdevallias from the Columbian region it is detrimental. It will very well be understood by the English Orchidists when I venture to say that the thermometer outside registers quite frequently in the summer 100° F. in the shade, dropping down to 80° F. in the night, and in the winter registering Zero. Of course the winter temperature is overcome by a little exertion on the part of the fireman; but the extreme summer heat is a difficult proposition to solve in growing such things as Odontoglossum crispum. The Mexican varieties Odontoglossum

Rossii, O. Cervantesii, and O. citrosmum hold their own. Of O. citrosmum, especially, at the present time, some excellent spikes are showing from the young growths.

Chysis bractescens and the hybrids are quite at home, their fusiform pseudobulbs measuring a foot in length and proportionate in thickness. One plant of C. bractescens I have just examined has three separate flower spikes from a single growth, containing exactly twenty flowers. It is undoubtedly a superb specimen.

Schomburgkias are rank growers, and they simply delight in the summer heat of St. Louis. S. undulata is in flower at the present time, and S. tibicinis is bearing several spikes. This is an annual occurrence. I remember quite well during my Kew days trying to coax this species to flower, exposing it to full sunshine, &c., without success, but here it is suspended in the East Indian House, and is heavily shaded during summer, and still it produces its flowers as regularly as the Cypripediums.

Oncidium iridifolium is also very free flowering, producing them indefinitely through the summer, and also its equitant neighbour, O. variegatum. The Snail Shell Orchid, Epidendrum pentotis, has an extremely long-flowering period, providing the spikes are left on the plant. For curiosity I allowed one spike to remain; the first flower opened on March 20th, 1909, and, using a typical American phrase, "it quit" March 15th, 1910. Various other species are in flower at the time of writing, viz.: Cymbidium aloifolium, C. Finlaysonianum, Bulbophyllum fuscum, Polystachya cerea, Ornithocephalus gladiatus, Cirrhopetalum Lendyanum, Sobralia dellense, Epidendrum odoratissimum, E. aromaticum, E. × kewense, the fine E. × O'Brienianum, Xylobium pallidiflorum, Diacrium bicornutum, Vanilla planifolia, &c.

I have enclosed a photograph of beans collected from one plant of Vanilla planifolia, with a single bean of Vanilla Pompona at the top of the picture. Vanilla planifolia produced eight hundred flowers last year, and four hundred of these were pollinated, the beans taking about ten months to materialize. This phenomenal crop has not affected the plant in the least, in fact, its compact racemes are being produced even more abundantly than the preceding year. It was planted amongst a bed of Bromeliads about seven years ago, it then being an ordinary cutting about four feet long. The environments being to its liking, viz., heat and moisture, it soon assumed its epiphytic habit, its long roots hanging down from above and penetrating the soil below. During the growing season plenty of liquid manure was given.

An experiment which I have tried here regarding well established Vanilla plants when shy of flowering is to reduce the flow of sap by cutting off say two to three feet of the leading growths, or bending them over and tying them at the bent portion. Either method will be found satisfactory. The

tendency is then for them to produce flowers instead of growth. This method is practised in the East Indies when the dry season has not been sufficient for the production of flowers.

The Orchid houses at the garden are built with a so-called double roof, there being a space of four inches between. The inside roof is glazed with ground glass, so as to reduce the rays of the sun when the shades are not in use. With this double roof sudden changes of temperature, which occur frequently, are easily overcome.

The European method of cultivation is practically revolutionised in the States, especially watering. Instead of using the utmost zeal with a watering can, the infallible hose, with a fine rose adjustment, is attached to the faucet. What would be the result if English Orchid growers were to spray their Vandas in this fashion, or have a house full of Cattleyas planted on ordinary rafts? Well! needless to mention!!

G. H. PRING.

COMPOST FOR CALANTHES.

DIFFERENCES of opinion exist as to the cause of "spot" in Calanthes, but a note by Mr. H. J. Chapman in a recent issue of the *Gardeners' Magazine* suggests that the nature of the compost has some influence on its presence or absence. He remarks:—"I have produced some of the finest Calanthes I have ever grown with nothing more than turfy loam and sand, and the plants showed no sign of the dreaded spot. When I first took charge of the collection here I used what most growers would consider the proper compost, *i.e.*, turfy loam, fibrous peat, chopped sphagnum, some dried cow manure, coarse sand, and broken crocks. For the first season or two we had a fair amount of success. It was then decided that more turfy loam should be added. The first season gave us every encouragement until the new pseudo-bulbs commenced to form. The foliage then showed tiny white specks, which in due course showed the breaking up of the tissues, and finally the plants were almost ruined by the disfiguring black spot. A portion of the plants and those that had the previous year been badly affected were selected for treatment in a lighter and more open compost of Osmunda fibre, peat, and a little chopped sphagnum and broken crocks, and the result was so satisfactory that for the last two or three seasons nothing has been used but the light, open compost, and, notwithstanding the bad summer and unfavourable autumn, our Calanthes have never been so fine as they were this winter. I give these experiences as an object-lesson to those in charge of plants. As the time has now arrived when the various species and hybrids will require repotting I would certainly advise that loam should be altogether omitted from the compost where there has been any difficulty experienced from spotting, and a good open and porous one be tried on some of the plants, at least for a season."

AN ODONTOGLOSSUM CRISPUM IMPORTATION.

SOME time ago the writer had the pleasure of inspecting a large importation of Odontoglossum crispum in the collection of an amateur who is entirely his own gardener, and took down a few particulars about them which may be interesting to record. The history is briefly as follows. A stock of about 5,000 plants was purchased, and of these about 1,500 were disposed of at once, the remainder, about 3,500 plants, being retained. They were planted out in beds on either side of a rather long house, and as they flowered a selection of the best were potted up and the more ordinary forms disposed of in various ways.

At the time of my visit a good number were in bloom or spike. It was estimated that about a third of the plants had bloomed, and the composition of the collection, as far as it was then possible to estimate it, was decidedly interesting, The great majority of the plants were what may be termed ordinary O. crispum, but two good blotched forms and three or four albinos had flowered, also about twelve O. Hunnewellianum, five O. × Adrianæ, four O. gloriosum, six O. × Andersonianum, two O. × loochristiense, one O. luteopurpureum, one believed to be O. crocidipterum, and two or three other things of uncertain identity, having small flowers with rather narrow segments. Those that I saw included O. Hunnewellianum and gloriosum, forms of O. × Adrianæ, × Andersonianum, and a good many O. crispum, these showing a wide range of variation in shape and tint, and the majority quite ordinary forms, though a few were worth taking care of.

Assuming that the plants all came from a single importation—though no direct evidence was obtainable on the point—its composition would indicate that it came from the Velez district, which has previously yielded most of the kinds mentioned. The evidence as to the presence of O. luteopurpureum in that district is rather contradictory, but there is said to be a locality where both it and O. × Adrianæ occur with O. crispum (*O.R.* xvi., p. 162). By the way, it would be interesting to know if a hybrid between O. luteopurpureum and O. Hunnewellianum occurs there.

The above is probably oniy a repetition of the history of many another importation of O. crispum, but the facts are seldom recorded in detail, and often difficult to obtain. Their interest lies in the fact that what we call O. crispum to-day includes a series of very beautiful and complex hybrids, whose history and composition can only be ascertained by comparison with each other and with the species among which they are found, hence the importance of knowing the forms which grow together in any given district. A very interesting biological problem is involved, for these plants have probably been intercrossing for thousands of years.

R. A. R.

LÆLIOCATTLEYA SHEPHERDII.

THE annexed figure represents a striking hybrid which was raised by Mr. E. O. Orpet, South Lancaster, Mass., U.S.A., from a yellow variety of Lælia × nigrescens crossed with the pollen of Cattleya Dowiana, and which flowered over a year ago. Mr. Orpet describes the sepals and petals as wholly golden yellow, and the lip beautifully veined with gold lines. On the whole the character of the pollen parent seems most in evidence, but the dwarfed habit is probably due to the influence of Lælia pumila, which

Fig. 11. LÆLIOCATTLEYA SHEPHERDII.

was one of the parents of L. × nigrescens, while that of L. tenebrosa is probably seen in the rich colour of the sepals and petals and in some of the details of the lip. It promises to develop into a very handsome thing, of rather dwarfer habit and more compact shape than L.-c. luminosa, and also more yellow in colour. The colour is remarkable, considering the amount of purple in the parents. The figure is reproduced from a photograph kindly sent by Mr. Orpet.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 5th, when there was a magnificent display of Orchids, and the awards consisted of one Gold Medal and four other Medals, three First-class Certificates, three Awards of Merit, three Botanical Certificates and two Cultural Commendations.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a brilliant group, which occupied more than half the stage at the end of the Hall, and to which the Society's Gold Medal was awarded. It contained a very fine series of Odontoglossums, prominent among them being forms of O. × amabile, crispum, × eximium, × Adrianæ, × Rolfeæ, Pescatorei, luteo-purpureum, Hunnewellianum, and × armainvilliereuse, O. × percultum Fairlawn var., a very richly blotched hybrid called O. × Ernestii, and another handsome seedling from O. × loochristiense crossed with a blotched O. crispum, Odontioda Vuylstekeæ, Craveniana, Bradshawiæ, Oncidium cucullatum, concolor, Trichopilia suavis, Maxillaria Sanderiana, Cymbidium insigne, some beautiful examples of Phaius × Norman and Wallichii. Cattleya Schrœderæ, white forms of C. intermedia, C. × Suzanne Hye de Crom, C. × Dusseldorfii Undine, a handsome Sophrocatlælia derived from Sophrolælia Cleopatra × C. gigas, some handsome Brassocattleyas, Dendrobiums, and other good things, of which only a fraction can be noted, Awards of Merit were given to Odontioda Goodsoniæ, a very handsome scarlet hybrid with some white markings, supposed to have been derived from Cochlioda Nœtzliana and Odontoglossum × armainvillierense, and to Odontoglossum × Ceres, Goodson's var. (O. × Rolfeæ × Rossii), a handsome thing, most like the latter in shape and markings, and having a broad white lip with only some brown dots on the yellow crest.

Mrs. N. C. Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received a First-class Certificate for Odontoglossum × ardentissimum var. Norman Cookson, a remarkably fine form, having broad, deep, claret-coloured sepals and petals, margined and tipped with white, and a broad, handsomely blotched lip. The spike bore sixteen flowers.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Lycaste Skinneri hellemensis, a very richly-coloured form, having deep rose sepals and petals, and a white lip blotched with purple. He also sent Cattleya × Apelles (Mendelii × Whitei), a richly coloured hybrid, Odontoglossum × amabile, Westonbirt var., O. × ardentissimum Westonbirt var., and O. Pescatorei, Westonbirt var., the latter, a finely-grown plant, bearing a panicle with nine side branches and about fifty flowers, receiving a Cultural Commendation.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent a very interesting little group, containing Dendrobium × Clio giganteum, Odontoglossum Rossii roseum, Epidendrum variegatum, and a splendidly grown plant of Cirrhopetalum Cumingii, bearing eighteen inflorescences, which gained a Cultural Commendation. Botanical Certificates were given to Megaclinium triste and M. fuscum, the former with dark purple flowers, and the latter purple with some white markings.

Gurney Wilson, Esq., Haywards Heath, sent Sophrocatlælia bletchleyflora, a richly coloured hybrid, and Pleurothallis tridentata, the latter receiving a Botanical Certificate. It bears brownish flowers in the axils of the ovate leaves.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group, including some beautiful forms of Phaius × Norman, Gatton Park var., Cœlogyne Sanderæ, Warcewiczella discolor with four flowers, the rare Maxillaria Lindeniæ, a very brilliant form of Odontioda Bradshawiæ with a spike of fifteen flowers, Panisea apiculata, and a pretty hybrid raised from Dendrobium × Owenianum album × Wardianum album, having white flowers with a pair of red spots on the yellow disc of the lip.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent a good blotched form of Odontoglossum crispum, and O. × armainvillierense Starlight, bearing many small red dots on the petals.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed eleven well-flowered plants of a beautiful deep yellow form of Dendrobium × Thwaitesiæ.

Mrs. Temple, Leyswood, Groomsbridge (gr. Mr. Bristow), sent Læliocattleya Mrs. Temple (C. Mossiæ × L.-c. Henry Greenwood), a large and handsome rose-coloured hybrid with some yellow veining in the throat of the lip.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very large and well-arranged group, to which a Silver-gilt Flora Medal was given. It contained a fine series of hybrid Dendrobiums, some good D. nobile virginale, D. n. Armstrongiæ (D. n. Amesiæ × D. n. virginale), a very fine white form with a dark maroon blotch on the lip, D. Brymerianum, D. Harveyanum, with deeply fringed petals, Lycaste Lawrenceana with eight blooms, L. Skinneri alba, L. gigantea, many fine Odontoglossums, O. crispum solum, and a form of O. × eximium with almost violet-blue flowers, Lælia × Gwennie, some good Sophronitis grandiflora, Masdevallia triangularis, Cymbidiums, Læliocattleya Wilsoni (L. Jongheana × C. × Hardyana), a richly coloured hybrid most resembling the former in shape, Cypripedium hirsutissimum, venustum, philippinense, and numerous others.

Messrs. Sander & Sons, St. Albans, staged a fine group, to which a Silver

Flora Medal was given. It contained numerous fine Odontoglossums, noteworthy among them being O. × regale (× armainvillierense × Lawrenceanum), having yellow sepals and petals heavily blotched with purple-brown, and a white, well-blotched lip, O. × blando-nobile, O. × percultum ampliatum, O. × excellens, O. × elegans, Miltonia × Bleuana, M. Warscewiczii, Odontioda Bradshawiæ, and others, Dendrobium atroviolaceum, D. Dearei, D. albosanguineum, D. velutinum, Renanthera Imschootiana, a fine Vanda cœrulea, a white Sobralia sp., Brassolælia Clio and Helen, Læliocattleya Baroness Schröder, Oncidium pubes and Marshallianum, Læliocattleya callistoglossa, Masdevallia Arminii and × Pourbaixii, Eria amica, Cattleya × Thayeriana, and other interesting things. A First-class Certificate was given to Phalænopsis × casta superbissima, a remarkably fine form, having leaves resembling P. Schilleriana, and the flowers large, prettily suffused with pink, and well spotted with brown on the lip.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a rich group, containing many beautiful Odontoglossums, as O. × Lambeauianum, O. × Eleanor, a very strong plant of O. × Rolfeæ with three spikes, a good O. brevifolium, O. × Adrianæ × armainvillierense, a handsomely blotched hybrid, and another beautiful violet-blue hybrid from O. × armainvillierense × Lambeauianum, Odontioda Vuylstekeæ, Bradshawiæ, Diana, and others, Brassia brachiata, Warscewiczella discolor, Calanthe veratrifolia, Angræcum citratum, Cattleya Schrœderæ, three well-bloomed specimens of Masdevallia Houtteana, M. Winniana, Vanda Bensoni anchorifera, Lycaste Skinneri exquisita, L. gigantea, Læliocattleya Thia (C. × Enid × L.-c. Dominiana), Oncidium concolor, O. Harrisonianum, and others. An Award of Merit was given to Sophro-Lælio-Cattleya Hon. Barbara Wilson (S.-l. heatonensis × C. Fabia), having rosy mauve flowers flushed with orange, and the lip ruby-crimson with an orange throat.

Messrs. Stuart Low & Co., Enfield, received a Silver Banksian Medal for a good group, including some fine Cattleya Schrœderæ and Dendrobium infundibulum, D. nobile virginale, D. Wiganiæ, Odontoglossum Rossii, triumphans, Cervantesii, Pescatorei, sceptrum, Masereelianum, Lycaste fulvescens and gigantea, Oncidium pubes, Angræcum Leonis, Bulbophyllum cupreum, Cymbidium Lowgrinum, Cypripedium Druryi, Læliocattleya Goldcrest, Epidendrum radicans, Brassolælia Jessopii, Cirrhopetalum Mastersianum, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, sent some good forms of Odontoglossum triumphans, O. × crispum, Cattleya Mendelii, Oncidium Kramerianum, &c.

Mr. E. V. Low, Haywards Heath, sent a pretty little group, including

Dendrobium × Thwaitesiæ, × Sybil, × Luna, × xanthrocentron, and others, Cattleya Schrœderæ alba, C. Lueddemanniana Stanleyi, Epidendrum × Delphii (× O'Brienianum × Schomburgkii), Odontoglossum × Groganii, Cirrhopetalum Makoyanum, some good Odontoglossum crispum, &c.

Mr. L. R. Russell, Richmond, sent some pretty forms of Macodes Petola and Anœctochilus setaceus, which were shown under bell glasses.

At the meeting held on April 19th there was a good display of Orchids, and the awards consisted of three medals and seven Awards of Merit.

M. Henri Graire, St. Fuscien, Amiens, sent a small but very interesting group, consisting of Odontioda Euterpe (C. Nœtzliana × O. Uroskinneri), bearing small deep-red flowers with a distinctly three-lobed lip, Odontoglossum × Thompsonianum, St. Fuscien, a dark violet-purple form margined with lilac, and O. × Rossianæ (Rossii × Adrianæ), a pretty white flower marked with brown. An Award of Merit was given to O. × Rossianæ rubens, having the sepals and petals lilac, the former regularly spotted with dark purple, and the latter bearing a few similar spots on the base, while the lip is rosy lilac with a yellow crest. O. crispum, St. Fuscien, a beautiful white variety, clearly blotched with purple, gained a similar award.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), received an Award of Merit for Odontoglossum × Lawrenceanum, Cobb's var. (triumphans × Rolfeæ), a remarkably fine form, having very broad yellow sepals and petals, heavily blotched with purple-brown, and a nearly circular white lip, with a yellow crest and some purple markings at the base. He also sent Odontioda Charlesworthii superba, with very brilliant ruby-purple flowers, Cypripedium × Vipani, and some good cut spikes of Odontioda and Odontoglossum.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received an Award of Merit for Odontoglossum × regale rosefieldiense (Lawrenceanum × ardentissimum), a charming thing, bearing a fine spike of flowers, most like the latter parent, but having a yellowish ground colour heavily blotched with dark red. He also sent the handsome O. × Crawshayanum (Hallii × Harryanum), O. × nitens (Hunnewellianum × ardentissimum), a well-blotched flower, O. × Aida (× Coradinei × Harryanum), O. × Amneris (cristatellum × Crawshayanum), and O. × Wendlandianum Crawshayanum, the latter a natural hybrid, and the only one of the series not raised in the collection.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), received an Award of Merit for Odontoglossum × Arnoldianum, a plant of doubtful parentage, having broad claret-brown sepals and petals with a few white markings, and a broad white lip blotched with purple. He also sent

two plants of the beautiful Brassocatlælia Fowleri, having bright yellow flowers tinged with salmon colour.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum crispum Newtoni, well blotched with crimson-brown, O. × eximium Clarksoni, a very richly-blotched form, and O. × eximium Lord Carnarvon, a lighter form bearing a branched spike.

A. Harrison, Esq., Lyndhurst, Watford, sent Dendrobium nobile nobilius, Cattleya Schrœderæ, Odontoglossum Pescatorei × Hallii, and O. crispum × gloriosum.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Cymbidium Lowianum Pitt's var., bearing a fine spike of thirteen fine flowers, with a very deep brownish crimson blotch on the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Cypripedium × The King (bellatulum × selligerum majus), a large cream white flower, well blotched with purple-brown.

E. Rogerson, Esq., West Didsbury, Manchester (gr. Mr. Price), sent Odontoglossom × eximium Rogersoni (crispum × armainvillierense), a beautiful form, with very round flowers of good substance, and bearing a zone of brown blotches.

Messrs. Stuart Low & Co., Enfield, staged a very fine group, to which a Silver-gilt Flora Medal was given. It contained some fine forms of Cattleya Schrœderæ and Mendelii, C. × Stuartii (Mendelii alba × Mossiæ Reineckeana), a good white flower with carmine-rose markings on the lip, a fine plant of Odontioda chelseiensis, a good lot of Dendrobium infundibulum and D. cariniferum, D. macrophyllum, some fine Oncidium Marshallianum, O. pubes, Epidendrum variegatum, E. radicans, a dark Cymbidium Lowianum, Odontoglossum sceptrum Masereelianum, O. Rossii, O. Cervantesii, O. × Humeanun, O. × Rolfeæ, a lot of well-flowered O. Pescatorei and O. crispum, Masdevallia × Pourbaixii, Cirrhopetalum picturatum Cliftoni, a robust plant bearing three very strong inflorescences, and other good things.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a fine group, including some good Læliocattleyas and Brassocattleyas, Brassolælia Gratrixiæ, Cattleya Lawrenceana, and some good C. Schrœderæ, Bifrenaria Harrisonæ pubigera, a fine plant of Chysis bractescens, some good Sophronitis grandiflora, Saccolabium ampullaceum, Bletia catenulata, Dendrobium Dalhousieanum, Odontioda Cooksonæ, and some good Odontoglossums, noteworthy among them being forms of O. crispum and O. × eximium, the pretty little O. crocidipterum, O. × Fascinator, O. × Vuylstekeæ, &c. An Award of Merit was given to Sobralia Cliftoniæ, a rather dwarf species said to have been introduced from Ecuador, and something like a dwarf S. macrantha in habit, but the flowers white, ot

good substance, and white with a tinge of purple in the throat of the lip.

Messrs. Charlesworth & Co., Haywards Heath, also received a Silver Flora Medal for a fine group, including some good Phaius × Norman, Læliocattleya Larissa (L. flava × C. Mendelii), a bright yellow hybrid, the dark L.-c. Dominiana magnifica, L.-c. Doris, some good Cattleya Mendelii, Odontoglossum × hibernicum, O. × Eleanor, some good O. × armainvillierense, and other hybrids, Warscewiczella discolor and marginata, the beautiful Trichopilia Backhouseana, Dendrobium Bronckhartii, Cœlogyne chloroptera, Cyrtopodium Andersoni, Brassia brachiata, and other good things.

Messrs. J. & A. A. McBean, Cooksbridge, received an Award of Merit for Miltonia Phalænopsis McBean's variety, a very beautiful form, having an exceptionally large rose-coloured blotch on the lip, and contrasting strongly with the ordinary form. They also sent some good forms of Cattleya Schrœderæ and Mendelii, Odontoglossum Pescatorei, crispum and × Rolfeæ, with a home-raised O. × Wilckeanum.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a small group, including some good forms of Cymbidium × Woodhamsianum, a fine plant of Odontoglossum nævium, Masdevallia Chestertoni, Phaius × Norman, Lycaste Skinneri, L. gigantea, Cypripedium × Helen II., and a hybrid from C. Chamberlainianum × ciliolare.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a good Cattleya Schrœderæ and C. Trianæ Empress of India, a good white form, with some purple mottling in front of the yellow disc of the lip.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent Miltonia × Bleuana a good Odontioda, and about ten handsome hybrid Odontoglossums, of which the names were not given.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting of this Society, held at the Coal Exchange, Manchester, on April 7th, the quality of exhibits was again very high. The members of the Committee present were: Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Sander, Arthur, Warburton, Parker, Keeling, Holmes, Cowan, Weathers (Hon. Sec.), and, by invitation, Ed. Roehrs, U.S.A.

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a very fine miscellaneous group, which gained a Silver-gilt Medal. The group included many rare and choice Botanical specimens, the best being two very fine plants of Cyrtopodium, viz., punctatum and Andersoni, which gained First-class Botanical Certificates. A magnificent plant of the rare Vanda suavis var. pallida, carrying several spikes, gained a First-class Certificate and Silver Medal. Sophrocatlælia Hon. Mrs. Barbara Wilson and Cattleya ×

Suzanne Hye de Crom also gained First-class Certificates, while Awards of Merit went to Læliocattleya Thurgoodiana, Vanda teres, Little's var., and Angræcum Arnoldianum. Several other plants received First and Second-class Botanical Certificates.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), staged a group which included many good Odontoglossums, Cattleyas, &c., and received a Silver Medal. Brassocattleya Veitchii var. plumptonensis and Lee's variety both gained Awards of Merit, as did also Læliocattleya Lustre, Plumpton Hall var. and Odontoglossum crispum Plumpton Beauty, well blotched and of good shape. I noted a nice plant of Cattleya Lueddemanniana Stanleyi.

Richard Ashworth, Esq., J.P., Newchurch (gr. Mr. Gilden), staged a very effective group, which included several good Odontoglossums in variety, the best being O. sceptrum Masereelianum, Odontiodas and Cattleyas in variety. Cattleya × Robert de Wavrin (Schilleriana × Schrœderæ) and Odontoglossum crispum Madame Linden secundum both gained Awards of Merit (Silver Medal for group).

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a small group of good quality which gained a Silver Medal, in which I noted strong plants of O. × harvengtense, O. × excellens and O. crispum. O. c. var. King Emperor, a heavily blotched form of good shape gained a First-class Certificate, and O. × eximium Warburton's var. an Award of Merit.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a fine group of mixed Cattleyas and Lælias, including many varieties of C. Schrœderæ, Lælia anceps alba, &c. A distinct variety of Cattleya × Empress Frederick, named King Edward VII., gained a First-class Certificate.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent the fine hybrid Odontoglossum × keighlevense (amabile × crispum), very similar to a finely marked O. crispum, which gained a First-class Certificate, the same award going to O. c. keighleyense. Awards of Merit were given to O. c. Daltonianum and Odontioda × beechense (C. Nœtzliana × O. Rolfeæ).

Dr. Hodgkinson, The Grange, Wilmslow (gr. Mr. Woore), sent a very distinct form of Cypripedium bellatulum Hodgkinson's var., which gained a First-class Certificate. It is much after the "Queen of Spain" type, the dorsal sepal differing in having only two or three faint spots basally.

Messrs. J. Rutherford and N. Galloway sent small groups which gained a Bronze Medal each, and the Rev. J. Crombleholme and H. Arthur, Esq., received a Vote of Thanks for a small exhibit.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a very interesting group, which gained a Silver Medal. Dendrobiums were shown

in choice variety, namely D. × Thwaitesiæ, D. nobile virginale, D. × xanthocentron, D. × Luna, D. × Sybil, &c. Several plants of Brassocattleya Thorntoni, Epidendrum × Delphi, Odontoglossum × Groganiæ, &c.

The Liverpool Orchid Co., Gateacre, staged a distinct group, in which the highly coloured Læliocattleya × G. S. Ball were the predominating feature, backed by a few varieties of Dendrobiums.

Messrs. Charlesworth & Co., Haywards Heath, sent the hybrid Cattleya × Robert de Wavrin, which gained an Award of Merit.

Messrs. Robson, Keeling, Shackleton and Birchenall, were given Votes of Thanks for exhibits.

At the meeting held on April 21st the Committee sat as follows:—Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Cowan, Ward, Arthur, Warburton, Parker, Holmes, Cypher, Weathers (Hon. Sec.), and, by invitation, Mr. F. Sander and Mr. Chapman.

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), again staged a fine group, including many choice hybrid Cattleyas and rare botanical plants. Epidendrum atropurpureum var. Leonnettianum and Cattleya Mendelii Hon. Mrs. Lister both received Awards of Merit, and Cattleya Gaskelliana var. Mrs. R. H. Measures a First-class Certificate. I noted Trichopilia suavis alba, fine plants of Dendrobium Bronckhartii, Vanda cœrulescens Cliftoni, Bulbophyllum Henshallii, and many others, several of which received First-class Botanical Certificates (Silver Medal for Cattleyas and Silver-gilt Medal for the whole group).

Richard Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Gilden), staged a very interesting group. Sophrocatlælia Hon. Barbara Wilson, Ashlands var. (S.-l. heatonensis × C. × Fabia), the best variety of this beautiful hybrid yet exhibited, received a First-class Certificate. The group included Cattleya Mendelii, The Queen, several good plants of C. Lawrenceana, Odontoglossums, &c. (Silver-gilt Medal).

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), gained a Silver Medal for a bright group. Odontioda Leeana (C. Nœtzliana × O. × spectabile), a fine flower of intense crimson and much akin to O. Charlesworthii, gained a First-class Certificate. Awards of Merit were given to Cattleya Trianæ Empress of India, C. Mendelii var. W. R. Lee, Odontoglossum crispum, Bertha Mary Lee, and O. × plumptonense (amabile × Lambeauianum). I noted Miltonia × Bleuana, M. vexillaria virginalis, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a group of Cattleyas, &c., which included Brassocattleya Madame Hye, Læliocattleya Wellsiana, L.-c. Haroldiana, Cattleya Schrœderæ alba, and many others (Silver Medal).

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), sent a group of Odontoglossums, which gained a Silver Medal. O. crispum President Laurier, O. × Wilckeanum Vuylstekeanum and Cypripedium × Black Prince (Chapmanii × Wm. Lloyd), a very dark variety of good shape, and an improvement on either parent, all gained Awards of Merit. I noted Odontoglossum × waltonense, O. crispum King Edward, &c.

W. Thompson, Esq., Walton Grange (gr. Mr. Stevens), sent a very interesting group of seedling Odontoglossums, varying in colour from pure yellow to deep brown-chocolate. O. crispum Comet gained an Award of Merit. A very dark self-coloured hybrid from O. × spectabile × Vuylstekei and two pretty yellows were the best (Silver Medal).

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), sent a small group of seedling Odontoglossums. O. × ardentissimum var. Norman Cookson, a grand variety with almost self-coloured sepals and petals of reddish chocolate, relieved with an irregular and very narrow margin of white, gained a First-class Certificate. O. × Fascinator Cookson's var. and O. × percultum var. Phœbe gained Awards of Merit.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent a small group of Odontoglossums. O. × Canary Bird, a natural hybrid, spotted unevenly, and one of the best yellows yet seen, gained an Award of Merit, the same award going to O. × Aireworth (crispum × Lambeauianum), and O. × Terpsichore (Pescatorei × polyxanthum).

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Odontoglossum × harvengtense var. Golden Gem (Award of Merit), and several others of good type.

J. Rutherford, Esq., Blackburn (gr. Mr. Lupton), sent Cattleya intermedia alba, C. × Lawre-Mossiæ and Cypripedium bellatulum.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers) sent the beautiful Lycaste Skinneri var. Goliath.

George Mitchell, Esq., Sale, sent Dendrobium × Cybele, Mitchell's variety.

R. le Doux, Esq., West Derby (gr. Mr. Fletcher), sent two plants of Dendrobium × Cooksoni (nobile × Wiganiæ).

Messrs. J. & A. A. McBean, Cooksbridge, Sussex, gained Awards of Merit for Cattleya Schrœderæ var. H. W. Cheal, a flower of fine proportions, and a fine home-raised Odontoglossum × Wilckeanum.

Mr. J. Birchenall, Alderley Edge, sent the quaint Uropedium Lindeni, Cattleya Mendelii alba, Pleurothallis Birchenallii, &c.

Mr. W. Bolton, Wilderspool, sent a nice seedling from Cypripedium × Maudiæ × Chamberlainianum.

Mr. W. Shackleton, Great Horton, received a Vote of Thanks for a small exhibit.

H. THORP.

ORCHIDS IN SEASON.

FIVE handsome hybrids are sent from the collection of J. McCartney, Esq., Hey House, Bolton, by Mr. Holmes. Læliocattleya Dreadnought was derived from L.-c. Henry Greenwood × C. Mossiæ, and may be described as a glorified C. Mossiæ with brighter colouring. It has broad rosy lilac sepals, rose-purple petals, and the front lobe of the lip is purple-crimson, while the side lobes are primrose, with some purple and yellow veining in the throat. It received a First-class Certificate and a Silver Medal from the Manchester Orchid Society on March 3rd last. L.-c. callistoglossa var. W. Holmes has rosy lilac sepals and petals, and a rich purple-crimson lip, with a sharply defined lilac throat, which is closely veined with yellow and purple. The others are three fine varieties of Cattleya Trianæ. One called Prince Henry is of good shape, and has rosy lilac sepals and petals, and the lip deep purple with a rich orange throat. Castle Hill var. has lilac sepals and petals, and the front lobe of the lip is purple, with some white and yellow in the throat. The variety albo-violacea has white sepals and petals, and a bluish purple blotch on the lip in front of the orange throat. It is a well shaped and very beautiful flower.

A handsome Odontoglossum obtained from O. × Adrianæ × O. × armainvillierense is sent from Messrs. Charlesworth & Co., Haywards Heath. It has very broad, short, light yellow sepals and petals, the latter very regularly blotched with brownish red, and the lip bears a darker blotch in front of the bright yellow crest. The flower is very round and full, and the influence of all the original species, O. crispum, Pescatorei, and Hunnewellianum can be clearly traced. A flower of a charming little Odontioda obtained from Odontoglossum × amabile crossed with Odontioda heatonensis, is also sent. It has light yellow sepals and petals, very copiously and regularly blotched with rosy brown, while the nearly triangular acuminate lip is more heavily marked with orange-brown. The crest consists of about six radiating teeth and the column wings are cirrhate.

Several handsome Odontoglossums are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. O. × Ceres Goodson's var. (Rolfeæ × Rossii majus), which received an Award of Merit from the R.H.S. on April 5th, is most like the latter in shape and colouring, the petals being very heavily blotched with deep brown, while the lip is white, broad, and entire, with the crest deep yellow and closely dotted with red-brown. One called O. × Ernestii is very much like a large and heavily blotched O. crispum, and the blotches are very large, regular, and deep chestnut-red in colour. O. × loochristiense crossed with a well-blotched O. crispum has most of the shape of the former, but a bright yellow ground colour. The sepals are very heavily blotched with brown, while the petals

and lip bear a zone of smaller blotches of similar colour. It is a very handsome thing. The other flowers are O. Phœbe, a bright O. × eximium, O. × percultum, and a handsome form of O. × armainvillierense, raised from O. crispum oakwoodiense × O. Pescatorei Charlesworthii, and having very large red-purple blotches. Odontioda Vuylstekeæ Albion is a very rich coloured form which is also sent, together with the very large and handsome Cattleya Schrœderæ var. Queen Alexandra, and two pretty white forms of C. intermedia. Somewhat later we received a flower of Odontoglossum × percultum (× armainvillierense × Rolfeæ), most like the latter, but having a bright yellow ground colour with much fewer spots; also O. × Eleanor, and a magnificent flower of O. × eximium Clarksoni, very heavily blotched with red-purple on a rosy ground.

A flower of Dendrobium nobile Armstrongiæ is sent by Messrs. Armstrong & Brown, Tunbridge Wells. It was obtained by crossing D. n. Amesiæ and D. n. virginale, and has pure white sepals and petals, of great size and substance, with a very dark maroon purple lip, and thus is most like the former but considerably improved.

A form of Læliocattleya Merciana, called Mrs. H. B. Simpson, is sent from the collection of Francis Wellesley, Esq., Westfield, Woking. The parentage is given as L. flava × C. guttata Prinzii (the latter being a synonym of C. amethystoglossa), and the plant is said to be flowering for the first time. The flowers, ten in number, are borne in a compact head, as in the Cattleya parent, and the colour is light yellow, with the front lobe of the lip and apex of the side lobes reddish maroon. The throat of the lip is deep yellow, and there are some maroon lines and markings on the disc, while the front lobe is prettily crisped. Flowers of a beautiful variety of Odontoglossum crispum, called Mrs. Francis Wellesley, are also sent. They are excellent in shape and substance, the segments being broad and the flower very full, while the colour is clear white, with an irregular blotch or group of cinnamon-brown spots on the lip only.

Several interesting flowers are sent from the collection of J. J. Neale, Esq., Penarth, by Mr. Hadden, including a spike of Arpophyllum giganteum, one of six borne by the plant, and one of Bulbophyllum saurocephalum, a native of the Philippines, also a form of Odontoglossum × Wilckeanum with a pale primrose yellow ground. Masdevallia is represented by M. Houtteana, amabilis, Schrœderiana, ludibunda, caudata and civilis, the latter said to be from a plant bearing forty flowers and forming quite a picture. The remainder are Cirrhopetalum Collettii and picturatum, the deep yellow D. Jenkinsii, Renanthera Imschootiana, and a brilliant form of Sophronitis grandiflora.

A very pretty little Dendrobium is sent from the collection of R. le Doux, Esq., Marlfield, West Derby, Liverpool, by Mr. Fletcher, which

was bought as a seedling from D. Wiganiæ × nobile some time ago. It is most like the former, the colour being light yellow, with a pair of eye-like maroon blotches on the disc of the lip. It is a form of D. × Cooksonæ (*Orchid Stud-Book*, p. 266).

THE AMATEUR'S COLLECTION.

MAY is probably the best month of the year so far as the Cool house is concerned, and there is now a wealth of Odontoglossum bloom where these beautiful plants are well looked after, the species and hybrids now in bloom being much too numerous to particularise. A genial growing atmosphere should be maintained, and fluctuations of temperature should be avoided as much as possible. Masdevallias of the Coccinea group and a few other things are also making a good show. The temperatures should not be allowed to fall too much during cold nights, but the fires should be kept low in the mornings when a spell of sunshine quickly runs the temperature up. This should be avoided as much as possible by a prompt use of the blinds. Intermittent sunshine, especially when accompanied by cold winds, calls for constant vigilance on the part of the grower. A sharp watch must be kept for insect pests, and the customary remedies applied when necessary. It is advisable not to leave the spikes on the plants too long, especially in the case of choice or weak varieties. Various plants which were placed in the Intermediate house for the winter may now be returned to the Cool house, where everything that prefers a low summer temperature will succeed best.

In the Intermediate house there is also a profusion of flowers, including the spring-flowering Cattleyas, species and hybrids, Dendrobium infundibulum and thyrsiflorum, various Oncidiums and Cœlogynes, Miltonia vexillaria, Odontoglossum citrosmum, Cymbidium Lowianum and eburneum, Lycaste Skinneri, Sobralia macrantha, Maxillarias and other showy things. Plants that are growing should be well looked after in the matter of watering to prevent a check, and attention generally should be paid to keeping the atmosphere in a suitable condition by judicious shading, damping down, and ventilation. This is specially important in the case of plants that flower on completion of the growth before resting, as Cattleya Warscewiczii, C. Dowiana, and C. × Hardyana.

In the Warm house Chysis bractescens, species and hybrids of Phaius, and various other things will be in bloom. Dendrobiums will now be mostly over and preparing for the period of active growth. Shading and ventilation will require full attention, and the house should be shut up early enough in the afternoon to retain a little of the sun-heat, which, in connection with a moist atmosphere, does so much to promote vigorous growth.

DENDROBIUM PHALÆNOPSIS.

A WRITER, "Monmouthian," in the *Journal of Horticulture*, thinks that the beauty and utility of this charming Orchid have not been fully recognised by gardeners in general, owing perhaps to poor cultivation and indifference to its needs where only a few have been grown, and the natural sequence, therefore, poor flowers. The flowers are borne in graceful sprays from 12 to 18 inches, or even more, in length; the colours ranging from pure white, through all shades of pink to deep mauve, and lasting in good condition on the plant for six or eight weeks. A dinner table adorned with these flowers will evoke the admiration of the most fastidious. The needs of the plant being few and its cultivation fairly easy, anyone having to keep up a supply of flowers through the winter ought not to be without a batch of these useful Orchids. When plants have finished flowering a long and decided rest is essential; they should be placed in a light position near the glass, the temperature ranging between 55 and 60 degrees, and if in a house where a chink of air can be given on favourable occasions so much the better. Watering during the resting period is a very important matter, enough only being given to keep the pseudobulbs from shrivelling. By April growth will be commencing, and it will be better to move the plants to a warmer house, a shelf in the stove being a suitable place. When the growths are about three inches in length any potting or top-dressing may be attended to. A suitable receptacle is a small pan about four inches in diameter, and 1½ inches in depth. In these shallow pans a single hole in the bottom will be sufficient. Over this place a large crock and a layer of smaller ones.

A compost in which we find them do well consists of two parts Osmunda fibre and one part sphagnum moss. The fibre must be clipped into short lengths to facilitate potting. The base of the plant should be just above the rim of the pan, care being taken to ensure the compost being pressed firmly around the plants, and not to injure the young roots during this operation. Potting will be better carried out piecemeal as the plants arrive at the proper stage of growth. During the growing period a high moist temperature is essential, slight shading during the hottest part of the day, and air admitted whenever possible, the house closed early in the afternoon, and a light spray overhead, are the conditions and treatment under which this Orchid will thrive. As soon as the spike appears at the apex of the growth the plants may again be moved to cooler quarters. Anyone who has seen a batch of these well-grown plants in flower cannot but be struck by their delicate colouring and usefulness.

They flower in the autumn and winter, but unfortunately the flowers are sometimes injured by fogs in urban districts.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during May, on the 3rd and 17th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Society's Spring Flower Show will be held at the Inner Temple Gardens, Thames Embankment, on Tuesday, Wednesday, and Thursday, May 24th, 25th and 26th. The Orchid Committee will meet at 10.30 a.m. Class I. is devoted to Orchids, and Silver Cups and Medals will be awarded according to merit. The Sherwood Cup, value twenty guineas, is again offered to Amateurs for the best group of Orchids, quality being preferred to quantity. A smaller Cup will be awarded by the Council as a second prize if the exhibits are sufficiently meritorious. Notice of intention to compete must be sent to the Secretary eight days before the competition takes place. The Show opens at noon on May 24th, but there will be a private view from 7 a.m. Admission by Member's Annual Tickets only.

A meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on May 5th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The meeting announced on the programme for May 26th is postponed untll June 2nd, on account of the Temple Show. The Annual General Meeting of the Society will be held in the afternoon of the latter date.

We have received the Schedule of Prizes of the Exhibition of Orchids and other plants to be held by the Massachusetts Horticultural Society at Boston, Mass., U.S.A., from May 26th to 30th, 1910. Thirty-one classes are set apart for Orchids, and numerous Gold, Silver and Bronze Medals are offered. For a group to fill 400 square feet there are three prizes of 1,000, 500, and 250 dollars, in addition to Gold, Silver and Bronze Medals. We regret that the notice came too late for our last issue, but a preliminary notice appeared at page 62 of our last volume.

Messrs. Jack announce a new series of books entitled "Present-day Gardening," and each devoted to a particular flower. The editor is Mr. R. Hooper Pearson, Editor of *The Gardeners' Chronicle*. Each volume will be written by an acknowledged expert, and will contain eight plates in colour, photographed direct from actual specimens by the most improved method of colour photography. The first two volumes will be "Pansies, Violas, and Violets," by William Cuthbertson, and "Sweet Peas," by Horace J. Wright. These will be immediately followed by "Daffodils," by

the Rev. J. Jacob, "Orchids," by James O'Brien, V.M.H., and other volumes. The text will be principally devoted to practical directions for culture and propagation, and the volumes will be issued at a popular price.

ORCHID PORTRAITS.

CATTLEYA × ROBERT DE WAVRIN, WESTONBIRT VAR.—*Gard. Mag.*, 1910, p. 264, with fig.

CYPRIPEDIUM × HERA, VAR. EURYADES.—*Gard. Mag.*, 1910, p. 318, with fig.

LÆLIOCATTLEYA DIETRICHIANA.—*Trib. Hort.*, 1910, p. 199, t. 201, 202.

LÆLIOCATTLEYA × TRIMYRA.—*Journ. Hort.*, 1910, i. p. 299, with fig.

LYCASTE SKINNERI.—*Journ. Hort.*, 1910, i. pp. 320, 321, with fig.

LYCASTE SKINNERI, HELLEMME'S VAR.—*Gard. Mag.*, 1910, p. 289, with fig.

MILTOGLOSSUM VUYLSTEKEI.—*Trib. Hort.*, 1910, p. 199, t. 204.

MILTONIA PHALÆNOPSIS, MCBEAN'S VAR.—*Journ. Hort.*, 1910, i. p. 365, with fig.

ODONTIODA GOODSONIÆ.—*Gard. Mag.*, 1910, p. 302, with fig.

ODONTOGLOSSUM × ARDENTISSIMUM, NORMAN COOKSON.—*Gard. Chron.*, 1910, i. p. 242, fig. 104; *Gard. Mag.*, 1910, p. 303, with fig.; *Journ. Hort.* 1910, i. p. 343, with fig.

ODONTOGLOSSUM × LAWRENCEANUM, COBB'S VAR.—*Gard. Mag.*, 1910, p. 341, with fig.

SOBRALIA CLIFTONIÆ.—*Gard. Mag.*, 1910, p. 325, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent.* An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

H. H.—Bulbophyllum saurocephalum, Rchb. f, and a very light-coloured form of Odontoglossum × Wilckeanum, Rchb. f.

H. G.—Unavoidably postponed.

J. F. S.—Oncidium reflexum, Lindl.

A. H.—Many thanks. We will record the matter next month.

H. G. A.—Odontoglossum luteopurpureum, Lindl.

CATALOGUE RECEIVED.—We have received the priced Catalogue of Messrs Charlesworth & Co., Haywards Heath, containing a very extensive series of species and hybrids, the latter forming one of the specialities of the firm. It contains fine coloured plates of Cattleya × Venus, Cypripedium Charlesworthi Bromilowiæ, Odontoglossum × eximium, Charlesworth's var., and Zygocolax × Charlesworthii.

ONE AND ALL GARDEN BOOKS, received from the Agricultural and Horticultural Association, 92, Long Acre, London, W.C.: THE UNHEATED GREENHOUSE, by E. J. Castle, and CABBAGES, by Horace J. Wright. Price one penny each, and well illustrated.

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,,	**Actæus revolutum**, 1 flowered and 1 unflowered growth	1	11	6
,,	**Arthurianum pulchellum**, New Hall Hey var., 1 unflowered and strong, new growth	0	5	0
,,	**Baron Schröder**, F.C.C. var., 2 unflowered and 2 strong, new growths	0	12	6
,,	,, ,, ,, ,, ,, 1 ,, ,, ...	0	10	6
,,	**insigne Aberdeen**, 1 unflowered growth with a break	2	0	0
,,	,, **Sanderæ**, 2 ,, ,, ...	0	12	6
,,	,, ,, 1 flowered, 1 unflowered growth, and a break	0	10	6
,,	,, **Sanderianum**, 1 flowered, 1 unflowered growth	0	10	6
,,	**Leeanum Clinkaberryanum**, 1 flowered, 1 unflowered growth, with a break ...	1	1	0
,,	,, ,, ,, ,, ,, ,, ,, ,, ...	1	0	0
,,	**giganteum**, G. S. Ball's var., 1 flowered, 3 unflowered growths	0	7	6
,,	**Maudiæ**, 1 flowered, 1 unflowered growth	1	1	0
,,	**Thalia giganteum**, 2 unflowered growths, and 1 nice break	10	10	0
,,	**Thompsonianum**, F.C.C., 1 flowered, 1 unflowered, and strong break	1	7	6
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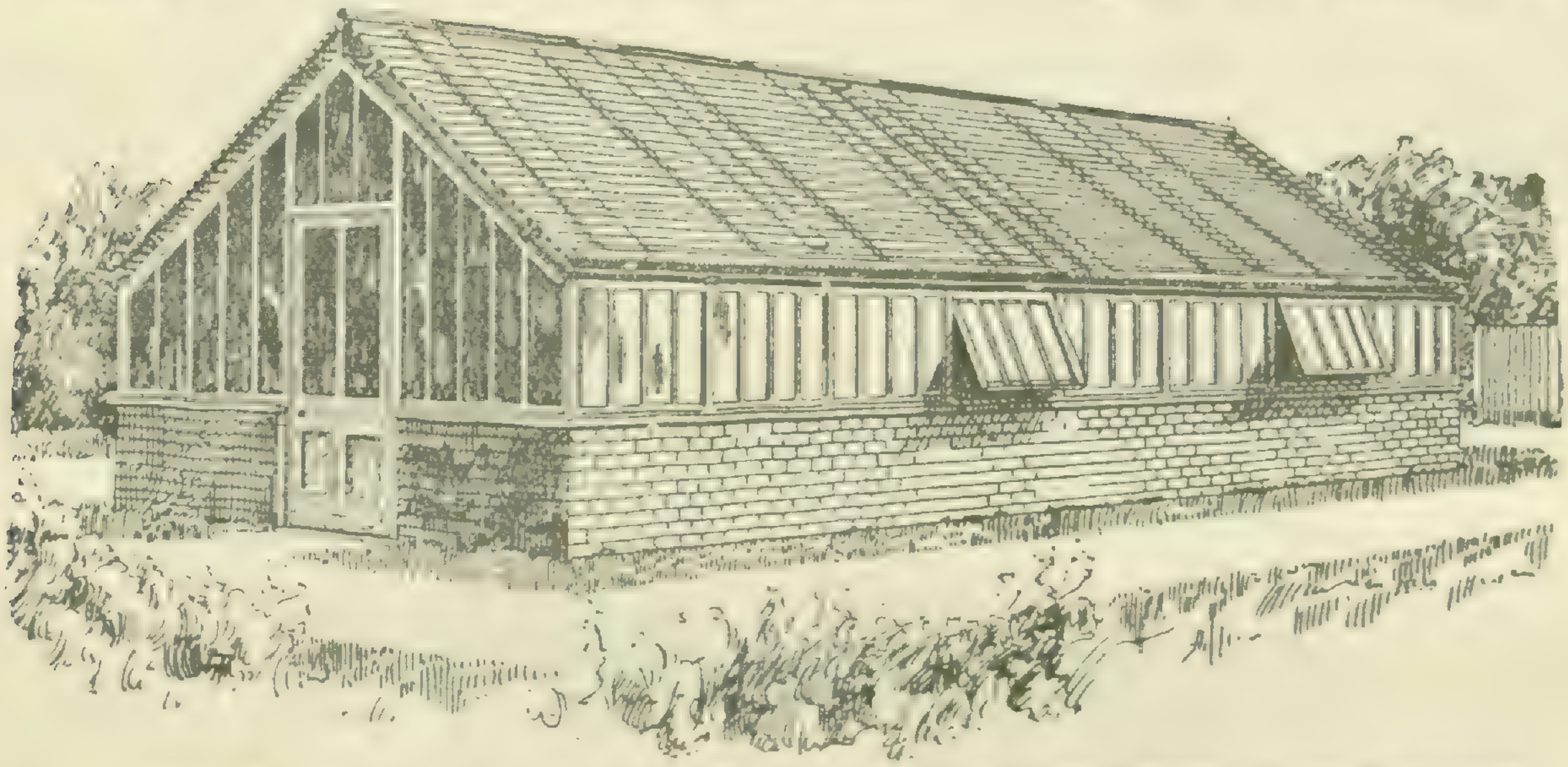

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *JUNE*, 1910. [No. 210.

KING EDWARD VII.

ON May 6th last the nation experienced a great and sudden bereavement in the death of its beloved Sovereign, King Edward VII., and we desire to express the loyal sympathy of our readers and ourselves with the bereaved Queen Alexandra and the members of the Royal family in their irreparable loss.

The late King was a great lover of Gardening, and an Orchid grower too. Orchids have long been successfully grown at Sandringham, and at Windsor houses were set apart for the culture of Cattleyas, Odontoglossums, Dendrobiums, Calanthes, Cypripediums and others, which were largely used for decorative purposes. We believe that His Majesty was a lover of Orchids, for on several occasions we have seen him examining the exhibits at the Temple Show with evident pleasure.

Many Orchids were named after the late King, among which we recall the handsome Brassolælia Veitchii var. King Edward VII., Odontoglossum crispum Edward Rex, and O. Hallii King Edward VII., which have received First-class Certificates from the Royal Horticultural Society; also Cypripedium Emperor of India, which gained an Award of Merit.

His Majesty's influence on Horticulture cannot be estimated, but since his accession to the throne he has ever exerted his influence in the cause of peace, and we must cherish the memory of Edward the Peacemaker, under whose beneficent reign Horticulture, and the particular branch of it to which these pages are devoted has made such rapid strides. Nine and a quarter years is not a long period, but we may recall the fact that the late King came to the throne three years before the brilliant little genus Odontioda made its first appearance. And since then over half-a-dozen other interesting generic crosses have been raised, while the genus Odontoglossum has grown out of all knowledge.

May the reign of his successor, His Majesty King George V., witness a further development of the peaceful arts, among which Horticulture, and its special branch of Orchid culture, occupies such an important position, and contributes so largely to the welfare and happiness of the nation at large.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 132).

THE two remaining subtribes of Epidendreæ, Pleurothalleæ and Lælieæ, are natives of the warmer parts of America, and there are strong reasons for believing them to be divisions of the same original branch, owing to the various points of resemblance between them.

The Pleurothalleæ are the more primitive in structure, and Bentham remarks that the chief character of the subtribe resides in the vegetative organs and inflorescence, the pollinary apparatus being that of Liparideæ, or the pollen masses usually, but not always, smaller and fewer. The Pleurothalleæ are generally small epiphytes. The flowering stems arise from the nodes of the rhizome or of a creeping caudex, and are simple, not thickened into fleshy pseudobulbs. They bear at the base, or at intervals below the leaf, one, two or more sheathing scales, and apparently terminate in a single leaf, either sessile or petiolate, but not forming any sheathing base. At the base or in the angle of this leaf is the inflorescence, sometimes a one-flowered peduncle, sometimes a raceme or a cluster of one or several-flowered peduncles, issuing from a sheaf, which is sometimes very minute, sometimes long and spathe-like. This inflorescence is in reality terminal, and the leaf lateral immediately under it. The secondary stem is generally well-developed, but in Masdevallia, and in a few species of other genera, the stem is so much shortened that the peduncles and leaves appear to come from the nodes of the rhizome direct. Nearly one thousand species of Pleurothalleæ are now known, and these are divided into some twelve or more genera.

Pleurothallis contains nearly five hundred species, and is distributed from South Mexico to Bolivia. The flowers vary much in size and colour, but in the majority they are small and green, with the sepals free or the lateral pair united, and the petals and lip smaller, the latter being articulated to the short foot of the column. The pollinia are two in number. The flowers are either borne in more or less elongated spikes or racemes, in heads, or sometimes solitary. A good many species are known in cultivation, chiefly in botanical collections, but P. Roezlii is often grown for its large deep purple flowers, which are borne in drooping racemes. P. macroblepharis, Barberiana, astrophora and some others are very graceful, and P. ornata is remarkable for the petals being fringed with hair-like appendages, which flutter in the slightest breeze and give the flowers a very remarkable appearance. These appendages are hollow, unicellular hairs, being filled with hair and attached by a very slender elastic base. P. scapha, P. insignis and a few other species are also attractive.

Stelis is much like Pleurothallis in habit, but the sepals are united into

a cup-shaped organ, which has the remarkable property of closing up at certain times of day or night, enclosing the very small petals and lip. The flowers are green, white, or purple, and the period of closing varies much in different species. The genus has a similar range to Pleurothallis, and about 200 species are known, a few being in cultivation. Physosiphon is a small genus differing from Stelis in having the sepals united into a tube at the base and spreading above. P. Loddigesii is well-known in gardens, but the rarer P. Lindleyi is a much more showy plant. Lepanthes differs from Stelis in habit, and in the united sepals not having the property of closing up periodically, while the petals and lip are also different. Over fifty species are known.

Masdevallia is a very large and well-known genus, containing some 200 species, and a good number are very popular garden plants. They have a dwarf tufted habit, owing to the suppression of the secondary stems, and the flowers are usually solitary, but in a few species racemose. The sepals are united at the base into a tube, and prolonged into tails of various lengths above, the small petals, lip, and column being included within the tube. The flowers vary greatly in size, shape, and colour, from green to yellow, white, rose, crimson, and scarlet, and often variously spotted or striped. In the M. Chimæra group the tube is more open and the lip variously saccate, while in M. triaristella and its allies the tails of the lower sepals are lateral. In M. muscosa and M. xipheres the lip is elongated, and has the remarkable property of closing up when a little tubercule on its face is touched, imprisoning the visiting insect in a kind of trap, from which it can only escape by crawling past the anther, and thus removing the pollinia to fertilise the next flower visited. It also closes normally at night.

Scaphosepalum is a small genus closely resembling Masdevallia in habit, but differing in having the diverging lateral sepals not united to the dorsal one into a tube. Cryptophoranthus is quite anomalous, having the sepals completely united at the base and apex, the only opening into the flower being at the sides where the dorsal and lateral sepals do not quite meet, leaving two small lateral openings, hence the term "window-bearing Orchids." Nothing is known of the insects which visit the flowers, but this remarkable arrangement is evidently connected with the economy of fertilisation. About a dozen species are known. All the preceding genera have two pollinia with short or minute caudicles.

Restrepia differs in having four pollinia, and also in floral structure, the lateral sepals being united into a broad body, situated behind the lip, while the dorsal sepal and petals are narrow, elongated, and more or less antenna-like. There are some 20 species, several of which are well-known in cultivation. Brachionidium is a closely allied Colombian and West Indian genus, having caudate sepals and petals. About six species have been

described, but none are known to be in cultivation. The pollinia are recorded as six, attached to a small viscus.

Octomeria resembles Pleurothallis in many respects, but has eight pollen masses. The flowers are almost invariably borne in fascicles, as in Pleurothallis section Aggregatæ, to which the resemblance is in some cases very close until the pollinia are examined. Over 60 species are known, the majority being Brazilian.

The two remaining genera placed here by Bentham are somewhat anomalous, but agree with Octomeria in having eight pollinia. Meiracyllium contains a single Mexican species, M. gemmæ, having broad sessile leaves at the nodes of the creeping rhizome, and few, terminal, rose-purple flowers, which are borne on short peduncles. The pollinia are united by a viscus, and the rostellum is recurved over the column. Arpophyllum has long cylindrical spikes of rose-coloured flowers. There are three or four species, natives of Central America and Jamaica, one or two being in cultivation.

The subtribe Lælieæ, as defined by Bentham, is characterised by having the pollinia laterally compressed and extended into linear pollinary caudicles, often more or less united. They may be either four in a single series, as in Cattleya, or eight in two series, as in Lælia. The species are mostly epiphytic, and the stems frequently swollen into pseudobulbs, though in many Epidendrums the stems are elongated, and bear numerous distichous leaves, as in some of the Dendrobiums. Bentham recognised sixteen genera, to which two or three have since been added, and the species known reach a total of over 600.

Several of the genera of Lælieæ are well represented in cultivation, Cattleya, Lælia, Sophronitis, and a few species of other genera being among our most popular garden plants. Ten of the genera have four pollinia only, but of these Alamania, Pinelia, Pleuranthium, Ponera and Hartwegia are either not in cultivation or very rarely seen. One species of Isochilus, I. linearis, is occasionally met with, and has slender stems, distichous leaves, and terminal spikes of narrow purple flowers, with partially united segments. Diacrium is a small genus with swollen pseudobulbs, which in a wild state are tenanted by ants. D. bicornutum is well known in gardens for its beautiful white flowers, which approach those of Epidendrum in structure, a genus in which it was originally included.

Epidendrum is a very large and polymorphic genus, including some 500 species, some being pseudobulbous, with few leaves, and others having slender stems with numerous distichous leaves. In the majority the lip is adnate to the column, but in some it is free, with various intermediate states. The flowers vary enormously in size, shape, and colour, and the pollinia are much like those of Cattleya. The genus ranges from the

Southern United States and Mexico to Uruguay and Bolivia, and a good many species are well known in cultivation, several of them being very popular garden plants.

Cattleya is very closely allied to Epidendrum, and indeed was included in it by Reichenbach, though there are marked differences in habit and structure by which the majority of the species are readily distinguished. It ranges from South Mexico to Uruguay and includes over forty species, the majority being among our most familiar garden Orchids. The nectary is entirely enclosed within the pedicel of the flower. Broughtonia is a West Indian genus of two species, in which the spur is adnate to the pedicel, but elongated and slightly swollen towards the base. Both species are occasionally met with in gardens.

We now come to the genera having eight pollinia, the latter being practically the only character by which Lælia can be distinguished from Cattleya. Over thirty species of Lælia are known, many of them being very familiar garden plants. The genus occupies two disconnected areas, one in Mexico and Central America, the other in Brazil. Schomburgkia is nearly allied to Lælia, and ranges from Central America to Colombia, about twelve species being known, a few of which are in cultivation. Sophronitis is a small Brazilian genus, containing four or five species of dwarf habit, which are very familiar garden plants. Brassavola differs from Lælia in its long beaked ovary, usually narrow sepals and petals, and mostly narrow fleshy leaves. It has a very similar distribution, and contains over a dozen species, several of which are familiar in gardens. B. glauca and B. Digbyana differ from the others in habit, and in having larger showy flowers, the latter species being remarkable for its deeply-fringed lip. Tetramicra is a small West Indian genus, having fleshy leaves and erect scapes of small flowers, with spreading segments, and the lower series of pollinia smaller than the upper. Leptotes, which Bentham united with the preceding, has two or three dwarf species, with fleshy, terete leaves, and flowers somewhat like those of a small Lælia. L. bicolor is well known in gardens, and there are two or three others, all natives of Brazil. Homalopetalum is a small Jamaican monotype whose affinity is obscure, for it has much the habit of the preceding, but a narrow petal-like lip, and a pair of oblong staminodes, which are free from the lip, but adnate to the base of the column. The lower series of pollinia are only half as large as the upper. It is a very distinct and interesting little plant, and is not yet known in cultivation.

Bentham recognised one other subtribe of Epidendreæ, namely Stenoglosseæ, but it contains a few anomalous genera which can be included in Lælieæ by a slight extension of its character. Bentham remarked: "The genera which I have collected in this subtribe are mostly small-flowered epiphytes, which have been generally classed either as sections of Epiden-

drum or as genera nearly allied to it. Like Lælieæ, they are all American. They all have a terminal inflorescence, and many of them have, as in Epidendrum, the labellum united with the column at the base; but the pollinary arrangement is so different that some have been transferred to other groups, even to Vandeæ. The pollen-masses (4, 6, or 8) are usually ovoid or globular, not at all or scarcely compressed, and distinctly separated in the anther by spurious dissepiments, dividing each cell into two, three, or four cellules or compartments; they are free, or nearly so, within the anther, though often after dehiscence connected by a small quantity of viscum, which sometimes extends into one or two elastic threads, connecting them also with the rostellum. The pollinary appendage so characteristic of Lælieæ is entirely wanting, or only very slight traces of it may be observed in a very few species." Four of the ten genera, however, were included by Lindley in Epidendrum, namely Lanium, Amblostoma, Seraphyta, and Hormidium, and the others, though somewhat anomalous, are nearly allied. They are Diothonea, Stenoglossum, Hexisia, Scaphyglottis, Hexadesmia and Octadesmia, and as very few of the species are in cultivation we will not consider them further.

The remaining tribe Vandeæ forms the subject of our next paper.

R. A. ROLFE.

(To be continued.)

DENDROBIUM ARACHNITES.

A PRETTY little cinnabar-coloured Dendrobium exhibited by Messrs. James Cypher & Sons, at the Temple Show, proves to be D. arachnites, a species described in 1874 (Rchb. f. in *Gard. Chron.*, 1874, ii. p. 354). It is a native of Burma, and was discovered by Mr. Boxall when collecting for Messrs. Hugh Low & Co. It is allied to D. nutans, Lindl. and D. Jerdonianum, Wight, but is much dwarfer in habit and has much larger flowers. The stems are barely 3 inches high, and the flowers are borne in fascicles of two or three, and are of the most brilliant cinnabar-red, almost recalling those of Lælia harpophylla. The sepals and petals are linear, 1½ inches long, and the lip elliptical-lanceolate, and similar in colour, with the addition of five brown lines extending from base to apex, and a few similar radiating veins on the side lobes. Mr. Day made a painting in June, 1886 (*Orch. Draw.*, l. t. 43), from a plant in the collection of W. Lee, Esq., Downside, near Leatherhead, and one figure of it has been published (*Gard. Chron.*, 1896, ii. p. 7, fig. 2), from a plant in the collection of J. Bradshaw, Esq., Southgate. It is a very elegant little plant, and remarkable for its dwarf habit and brilliantly-coloured flowers. It is deciduous, but the leaves are described as linear-lanceolate, acute, and 1½ to 2½ inches long.

R. A. R

DIES ORCHIDIANI.

THERE is always a little curiosity as to what the surprise is to be at the Temple Show. Six years ago the sensation was the remarkable Odontioda Vuylstekeæ, to which a First-class Certificate was awarded, and a Silver-gilt Lindley Medal "for progress." Now we have the pleasure of seeing some of its hybrids. The first, I believe, appeared a few weeks ago at the Horticultural Exhibition recently held in Brussels, under the name of Odontioda Sensation. Odontoglossum crispum is said to have been the pollen parent, and the hybrid is described as having a white ground, with a cinnabar-red blotch on each segment, and the crest bright yellow. M. Ch. Vuylsteke was, of course, the exhibitor, and he was able to send two others to the Temple Show. These were Odontioda King George V., of which Odontoglossum × laudatum is said to have been the pollen parent, and which gained a First-class Certificate. The other, which gained an Award of Merit, was called Odontioda Rosy Gem, and the pollen parent is said to have been C. × ardentissimum. They were very beautiful, and a great advance on the original Odontioda Vuylstekeæ in point of size, though scarcely as brilliant in colour, which might have been expected. It is hardly necessary to state that they formed a great centre of attraction. Their value I shall not attempt to estimate, but I note that one horticultural expert writes: "Monsieur Ch. Vuylsteke had one Odontioda upon which a price of £1,200 was placed. This was guarded all day by a constable." And no wonder, after the experience of one unfortunate exhibitor a few years ago. By the way, I never heard whether that mystery was cleared up, and I never see a plant of the beautiful Odontoglossum luteopurpureum Vuylstekeanum without recalling the circumstance. This, however, is a digression.

Another surprise was an albino of Cattleya Lawrenceana, the first which has appeared, though the species has been cultivated for a quarter of a century. It was exhibited by Messrs. Charlesworth & Co., and received a First-class Certificate under the name of Cattleya Lawrenceana Mary-Regina. It is a very charming thing. Considering how variable many of the Cattleyas are it is curious that C. Lawrenceana should show such a slight tendency to vary.

The Orchid exhibits at the Temple formed a really remarkable series, and the remark "Better than ever" was, I think, justified. The really large number of brilliant Odontiodas in the different groups was remarkable, considering that only six years has elapsed since the first of them flowered, and that the second did not flower until nearly two years later. So great a

development could scarcely have been foreseen, and it testifies to the really rapid progress that has been made.

The hybrid Odontoglossums, though now becoming familiar, were scarcely less remarkable, and choice blotched forms of O. crispum and hybrids with allied species occurred in profusion in several of the leading groups. It seems but a few years ago that the raising of Odontoglossums from seed was taken in hand seriously, but now they are becoming first favourites with hybridists, and seem to give very little trouble when once their requirements are understood. Almost every hybridist raises Odontoglossums nowadays, or tries to. It is no longer regarded as hopeless, and the result is adding a new stimulas to the cultivation of this popular genus. The next development is likely to be the extension of the range of colour by further crossing with the Odontiodas, and when the brilliant crimson O. Charlesworthii is further united with the Odontoglossums some brilliant results may be anticipated. I believe that crosses have already been made.

The arrangement of the various groups was in most cases excellent, and some very picturesque effects were made by the introduction of raised mounds and depressions. Caves and grottoes were almost attempted in one or two cases, in which, however, the lack of space was only too evident. A certain amount of crowding seems inevitable, and was noticeable in places. One of the most brilliant effects noticed was obtained by massing allied plants together so as to form masses of contrasted colour, the best example of this being two brilliant clusters of Renanthera Imschootiana placed on either side of a fine lot of Phalænopsis amabilis, with Odontoglossums and other showy things at the ends, and various dwarf things in front. More of this kind of arrangement might be attempted with advantage, even with the limited space at the Temple.

Examples of good culture were numerous, but rather lost in the crowd where so many fine things were brought together and staged in the smallest possible space. In fact, the culture of the exhibits generally reached a high standard of excellence, and a few of the hybrid Odontoglossums showed a size and vigour that was really remarkable. Evidence of progress was apparent on every hand, which testifies to the growing popularity of these beautiful plants.

The Show was again a great success, and I hope that the rumour which once more gained currency that this was the last Temple Show may prove to be falsified in the event.

ARGUS.

CŒLOGYNE CRISTATA.

CŒLOGYNE cristata is one of the most beautiful and easily-managed Orchids to be found in cultivation, and equally effective whether as small plants or grown on into specimens. In the latter state we have seen it in great masses literally smothered in flowers, almost like heaps of snow, so profusely does it bloom under good treatment, though from its dwarf stature and drooping inflorescences we prefer the smaller plants which, when suspended at about the level of the eye, show the beauties of the individual flowers and the

Fig. 12. CŒLOGYNE CRISTATA.

exquisite orange-coloured hairs on the lip to the greatest advantage. The annexed figure is from a plant in the collection of George Wilks, Esq., J.P., Ashford, Kent, and is reproduced from a photograph taken by Mr. F. Stedman, Ashford. It was sent by Mr. Wilks' gardener, Mr. A. Hutchinson, who remarks that the plant is in a 7-inch pan, and is watered with cow manure-water all the summer. Mr. Hutchinson also sends a photograph of a fine specimen of Platyclinis glumacea, in a 7-inch pan, and bearing over twenty of its graceful spikes. It is grown in oak leaves and

sand, and is in thriving condition. A third photograph shows a fine plant of Cymbidium Tracyanum bearing two spikes. It is potted in a mixture of turf and peat, and grows in a Cool greenhouse all the year round. All of them are excellent examples of good culture.

ORCHIDS AT THE BRUSSELS INTERNATIONAL SHOW.

THE first of the series of Horticultural Shows in connection with the Brussels International Exhibition was held at the Exhibition grounds, Brussels, from April 30th to May 3rd, and brought together a fine display of Orchids, about sixteen Medals being awarded. The exhibits were from Belgium, England, and France, and the plants were staged on a raised platform, about 300 feet long, in one of the temporary buildings, which was lighted and warmed by hot water pipes.

A magnificent group of 200 plants was staged by M. Firmin Lambeau, Brussels, to which a Gold Medal was awarded. The hybrid Odontoglossums were specially noteworthy, and included several fine forms of O. × Lambeauianum, O. × armainvillierense xanthotes, some good forms of O. × eximium, a particularly fine O. crispum with a large blotch on each segment, O. ramosissimum bearing a large branched spike, a number of unnamed seedlings, a fine Odontioda Bradshawiæ, Miltonia × Bleuana grandiflora, the handsome M. vexillaria memoria G. D. Owen, Dendrobium Bronckartii, Zygopetalum × Perrenoudii, some fine examples of Cattleya Lawrenceana and Mendelii, Cattleya Schrœderæ Queen Alexandra, the chaste C. Warneri alba, two good C. intermedia alba, carrying twenty-one flowers, Læliocattleya Firminii, the colour of the flowers being a mixture of apricot and gold, the handsome Brassocattleya Leemanniæ, Cypripedium × Maudiæ, C. × Rolfei, C. × gigas Corndeanii, C. × aureum Pomone, and various other good things.

M. Ch. Dietrich, Brussels, obtained a Gold Medal as the first prize for a group of fifty Orchids, limited to amateurs, among his best plants being Odontioda Lambeauiana, and a very fine O. Bradshawiæ, Renanthera Imschootiana, Phalænopsis amabilis Rimestadiana, Brassocattleya Veitchii and Thorntoni, a fine dark form of Miltonia vexillaria, M. × Bleuana, forms of Cattleya Trianæ, Mendelii and Schrœderæ, some good Odontoglossum crispum, &c.

In a similar class for Nurserymen, Messrs. Duchesne et Lanthoine, Watermael, Brussels, obtained the Gold Medal, with felicitations of the Jury, for an excellent group, including a magnificent plant of Vanda cœrulea bearing spikes of twenty-five and thirty very large and richly-coloured flowers, Odontioda Devossiana and Charlesworthii, O. Cassiope, Odontoglossum × Thompsonianum, O. × armainvillierense, O. × Fletcherianum, O. × Fascinator nobilior, Miltonia vexillaria virginalis, M. v. gigantea, and

others, M. × St. Andre (Bleuana × Roezlii), good forms of Cattleya Mossiæ, Schrœderæ, Mendelii, and Lawrenceana, an enormous clump of Cypripedium bellatulum, a fine example of Phaius × Norman, Dendrobium Dearei and velutinum, a fine Sophronitis grandiflora, with over fifty flowers, &c.

M. Ch. Maron, Brunoy, obtained a Gold Medal for a very beautiful group, including Læliocattleya Firminii and its variety superba, L.-c. Faust, a pretty apricot-yellow and pink hybrid, L.-c. Myra, L.-c. Princess Elisabeth, L.-c. Warteliæ, Epilælia distincta, a fine plant of Renanthera Imschootiana, some well grown Oncidiums, Cattleyas, &c.

M. Ch. Vuylsteke, Loochristi, Ghent, staged a number of remarkable hybrid Odontoglossums, fifteen of the best being enclosed in a glass case. Amongst the best of the spotted forms may be mentioned O. × Prince Leopold, a deep chocolate coloured flower with a narrow white margin to the segments, O. × Euterpe, a handsome regularly spotted form, O. × Princess Marie-José, O. × Manderianum, O. × Admirable, O. × conspicuum, and O. crispum La Perfection. Odontioda Sensation (Odontioda Vuylstekeæ × Odontoglossum crispum) is a remarkable hybrid with the flowers 2½ inches across, and most like the latter, the colour being white, with a cinnabar-red blotch on each segment, and a bright yellow crest. A large Gold Medal was awarded, and Silver-gilt Medals to Odontoglossum × Duc d'Ursel and another subject.

M. Jules Hye de Crom, Ghent, received a Gold Medal for a dozen handsomely blotched hybrid Odontoglossums, which were enclosed in a glass case, but of which the names were not given.

Messrs. Charlesworth & Co., Haywards Heath, Sussex, staged a rich and varied group, to which a Gold Medal was awarded. Among the more noteworthy exhibits were plants of the handsome Odontioda Charlesworthii and O. Bradshawiæ, Trichopilia Backhouseana, Odontoglossum × Ceres (Rolfeæ × Rossii), Læliocattleya Mercia, L.-c. Golden Glory, Zygocolax Charlesworthii (*Z.* × Perrenoudii × C. jugosus), Cymbidium Lowianum concolor, Miltonia vexillaria Lauræ, a very richly coloured form, Dendrobium nobile virginale, D. thyrsiflorum, a curious Gongora, which may be a form of G. odoratissima, Cattleya intermedia alba, a specially fine C. Schrœderæ, &c.

Messrs. Stuart Low & Co., Enfield, near London, received a Gold Medal for a fine group, including some good examples of Dendrobium crassinode, Wardianum, infundibulum, Epidendrum Wallisii, Odontoglossum Cervantesii, O. × elegans, O. Pescatorei, Cirrhopetalum Mastersianum and Collettii, Odontioda Goodsoni, Brassavola nodosa, and other good things.

Messrs. Pauwels et Cie., Meirelbeke, Ghent, received a Gold Medal for a very beautiful group, including some forms of Cattleya Lawrenceana,

Mendelii, Mossiæ, and Trianæ, two beautiful C. intermedia alba, C. × Empress Frederick, Lælia harpophylla, Epidendrum atropurpureum, Brassocattleya Veitchii Queen Alexandra. Silver-gilt Medals were awarded to a fine plant of Cypripedium Rothschildianum with four spikes, and to Brassocattleya Senateur de Bast.

MM. Peeters et fils, Brussels, received a Gold Medal for a beautiful group, containing a fine series of blotched Odontoglossums, Miltonia × Bleuana Peetersii, with a fine purple blotch at the base of the lip, some good Phalænopsis amabilis Rimestadiana, Læliocattleya callistoglossa, Mozart, Cholletiana and Hyeana, some brilliant Masdevallia coccinea, &c.

M. E. Praet, Mont-St-Amand, Ghent, received a Gold Medal as the first prize for a group of Cattleya Schrœderæ.

M. P. M. Buist, Brussels, sent a number of imported Orchids just as received, and before being potted up, a Silver Medal being awarded.

THE AMATEUR'S COLLECTION.

IN the Cool house Odontoglossums and Masdevallias will still be making a good show, and the brilliant Cochlioda Nœtzliana will be at its best. Watering is a matter that now requires plenty of attention, for the compost in small pots soon dries up, and drought at the root is specially injurious to growing plants. The plants should be looked round each morning if possible, and those that show signs of dryness should receive a good supply. Plenty of atmospheric moisture will be required, and the paths, walls and stages should be damped as often as necessary, which, with judicious shading and ventilation, will help to keep the temperature down in bright weather, a matter which gives constant trouble in some situations. Thrip will breed rapidly, and a sharp watch must be kept for their appearance, and light fumigations applied as often as necessary. A calm damp evening is best for this purpose. Every effort should be made to induce vigorous growth on the part of the plants, because on this largely depends the strength of the spike and quality of the flowers. Very little help from the fires will now be necessary unless the nights are cold or a spell of cold weather occurs.

In the Intermediate house Miltonia vexillaria, Epidendrum vitellinum, Lælia purpurata, Cattleya Mossiæ, Oncidium Marshallianum, and various other species will be making a good display, with some of the Læliocattleyas and other hybrids. Summer treatment will now be the order of the day, and efforts should be made to induce vigorous growth by liberal supplies of water at the root and plenty of moisture in the atmosphere. Special care should be taken that the summer-flowering Cattleyas which bloom on the young growths without resting do not experience a check, which might result in the loss or disfigurement of the spike. Shading and ventilation

will require attention as the power of the sun varies during the day. A slight increase of temperature late in the afternoon may be secured by reducing the ventilation, and this is conducive to vigorous growth, but the ventilators should be opened again before dark, as high night temperatures are injurious. The fires should be kept as low as possible except in dull or cold weather. The spikes should not be left on the plants too long, or shrivelling may sometimes be noticed. A sharp watch must be kept for insect pests, and the usual remedies applied.

In the Warm house Vanda tricolor and suavis, a few late-flowering Dendrobiums, and various Cypripedes will be flowering well, with Phalænopsis amabilis and others where such plants are grown. The conditions applicable to the Intermediate house will apply here except that a rather higher temperature should be maintained. A good many plants will require potting in this and the Intermediate house, and the right time for this operation is just when the young roots are beginning to push. If more room is required or if the compost is in bad condition potting is advisable, but otherwise a little top-dressing will suffice for the season. Root action should be encouraged as much as possible, as on it vigorous growth largely depends.

CALENDAR OF OPERATIONS FOR JUNE.

By W. C. PRICE, Oakdene, West Didsbury.

THE welcome change from dull to brilliant weather has been all that is desired for the welfare of the plants, which are already showing their appreciation by increased vigour, especially those that occupy the warmer departments. They seem to delight in their natural sun-heat, growing and flowering so much better than when fire-heat has to be used. The cool-growing species will be difficult to keep cool enough, especially if grown in a house that is exposed to the sun all day, and only by heavy shading, judicious ventilating, and abundance of moisture can this be done. The grower will find plenty to interest him in looking over his collection, as nearly every day there is something fresh to be noticed, such as a plant pushing new roots, and another a young growth or possibly a flower spike that has long been expected.

A word of caution to beginners may not be out of place against the practice of allowing the flowers to remain upon the plants too long. It is frequently done, greatly to the detriment of the plants, causing them to shrivel, and weakening them to such an extent that they are hardly able to form a new growth, and often die from exhaustion. Small and weakly plants should not be allowed to flower at all. The flower spikes should be removed as soon as they appear, and by giving the plants a fair amount of rest after flowering, and afterwards gradually starting them into growth,

many valuable plants may be saved, and brought round into their normal condition of health.

CALANTHES.—C. × Veitchii, C. vestita, C. Regnieri, and others of that section, are now making rapid growth, and should have water applied more freely at the roots. Care, however, should be taken with plants that are not rooting freely, for if they are given too much at this stage spot will set in, and the plant will be an eyesore for the rest of the season, and will only make up a weak bulb. A little extra attention now will more than pay for itself when the flowering season arrives.

CATTLEYAS.—C. Warscewiczii (gigas) will now be pushing up flower sheaths, and should be kept as near the glass as possible. Do not hurry them in any way, or they will make a second growth, which will most likely spoil the plant for flowering next year. C. Mossiæ, C. Mendelii and their numerous varieties will soon be passing out of flower, and if requiring repotting may be attended to shortly afterwards, using the compost and method as recommended in a previous Calendar. The same remark also applies to Lælia purpurata and the various Læliocattleyas and Brassocattleyas now in flower.

CYPRIPEDIUMS.—Cypripediums are now growing rapidly, and require abundance of moisture at the roots as well as in the atmosphere. With a little care they will grow very fast for the next three or four months, and give abundance of flowers during the autumn and winter.

DENDROBIUMS.—D. thrysiflorum, D. densiflorum, and others of that section will now be starting into growth, and can be repotted, but if the compost is sound and the plants have room enough in the pot for another season's growth do not disturb them. I do not like disturbing this section more than I can help, for they seem to thrive better when they have completely filled the pots with roots, and they certainly flower better when thoroughly pot-bound. They should now be placed with the other Dendrobiums till the new growth is completed, when they should be gradually hardened off and stood in a cool dry house for the winter. Most of the other varieties of Dendrobium are now making rapid headway, and every encouragement should be given to them to make large and firm new bulbs. Fumigate often with XL All compound, as I think that nearly every insect pest is represented in the Dendrobium house at some time or other during the season.

EPIDENDRUM VITELLINUM is now growing fast, and those that were repotted will now have got nicely rooted again. They now require copious supplies of water, both at the root and overhead, but care should be taken to see that none lodges in the centre of the young growths.

MASDEVALLIAS.—Masdevallias are now in full beauty, and require to be well shaded from bright sunlight. A position in a house facing north suits

them best for the summer months, and the house should be kept as cool as possible and well damped. The plants should be carefully watched for thrips, which are very partial to them. Green and yellow fly are also very fond of them, but if a mild fumigation is given about once a week it will keep them clean. If once allowed to make headway they quickly disfigure the plants, and make them look very unsightly for a year or two afterwards.

MILTONIAS.—Miltonia vexillaria with its many varieties and hybrids are now making a good show, and as soon as they pass out of flower they should be kept drier at the roots until the young growths are well away. Frequent dampings between the pots will almost suffice until the young growths are rooted. When the young growths commence to push roots any plants that require it should be repotted, using a compost consisting of one-third each of Osmunda fibre, polypodium fibre and sphagnum moss, well mixed together and potting moderately firmly.

ONCIDIUMS.—O. macranthum and O. lamelligerum will now be nearing the end of their flowering period, and in course of a week or two after the flowers are off they will commence to push new roots from the base of the last-made bulb, when any requiring it may be repotted, using the same compost as recommended for Miltonias. Use pots large enough to last them two years. They are very strong rooting plants and require plenty of rooting space. I have always found it best not to flower them the first season after repotting, as the spikes are on the plants for such a long time that the plants must be thoroughly rooted to withstand the tremendous strain put upon them.

THUNIAS.—T. Marshalliana, T. Bensonæ, and others, which were potted as advised, will now be expanding their flowers, and should have every encouragement. Their pots will now be filled with roots, and must not be allowed to get dry. Alternate waterings with liquid cow manure will be of great benefit to them, and help them greatly in their development at the present time. After flowering the plants should be removed to a house where they can have full sunlight and free ventilation given, to help them to mature their bulbs. A sharp watch must be kept for red spider and thrip. It is a good plan to syringe them once a week with a solution of good insecticide, and the plants should be laid upon their sides and the operation thoroughly done.

VANDAS.—Vanda teres and V. Hookeriana are now making a grand show, and while the flowers are on should be lightly shaded during the hottest part of the day, but afterwards they should have full sunlight and be syringed several times daily. V. tricolor, V. suavis, V. insignis, and others of this section of the genus, prefer a warm, shady and moist position. They are a beautiful and very interesting class, and not at all difficult to manage if the grower will study them a little.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 3rd, when there was a good display of Orchids, and the awards consisted of two medals, three First-class Certificates, two Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), received a First-class Certificate for Cattleya × Dusseldorfii Undine, Westonbirt var., a very beautiful form, the plant bearing two spikes and eight very large white flowers, with a pale yellow disc and a few dark dots at the base. An Award of Merit was given to Odontoglossum crispum Magnum Bonum, a very fine round white form, with clusters of red-brown spots on the sepals and lip. He also sent O. × Asphodel, a pretty pale yellow Odontoglossum with red-brown blotches, and a noble specimen of Cattleya Mendelii, Westonbirt var., bearing six spikes and an aggregate of seventeen very fine blush-pink flowers, with the lip rosy carmine in front.

W. B. Burkinshaw, Esq., West Hill, Hessle, Hull (gr. Mr. Barker), received a First-class Certificate for Miltonia × Bleuana, Hessle var. (vexillaria Queen Alexandra × Roezlii), a very fine form, having delicate pinkish white flowers, with a rose-purple base to the petals, and a bright reddish purple blotch at the base of the lip.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received a First-class Certificate for Odontioda Charlesworthii var. Theodora (C. Nœtzliana × O. Harryanum), a remarkably fine form, bearing a strong spike of handsome deep crimson flowers with a yellow crest to the lip. He also sent Odontoglossum × Zena (Harryanum × sceptrum), O. × Hellas (Hallii × Crawshayanum), O. × Elektra, and other interesting hybrids.

Mrs. Bischoffsheim, The Warren House, Stanmore (gr. Mr. Taylor), received a Botanical Certificate for Disa venusta, a very interesting South African species, having bluish flowers veined with red on the dorsal sepal, and the lip fringed and papillose.

J. B. Joel, Esq., Northaw House, Childwickbury, St. Albans (gr. Mr. May), exhibited a magnificent specimen of Cypripedium Rothschildianum, Northaw var., bearing six spikes and an aggregate of 32 flowers and buds, gaining a Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a choice group, including the beautiful Brassocattleya Veitchii var. Queen Alexandra, Odontoglossum × Mrs. F. Peeters, Cattleya Mossiæ var. Queen Isabella, with lavender-tinted flowers, C. Mendelii var. H. A. Tracy, C. M. Goodson's var., C. Schrœderæ alba, and Brassocatlælia Veitchii.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent Odontoglossum platychilum splendens, having bright rose-coloured flowers with purple spots on the lip.

E. Rogerson, Esq., West Didsbury, Manchester (gr. Mr. Price), sent Odontoglossum crispum, Oakdene Gem, a pretty regularly blotched variety, Cypripedium niveum, Oakdene var., a fine form, C. × Berkeleyanum, Oakdene var., and C. bellatulum, Exhims var.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent Odontoglossum × Thwaitesii (armainvillierense × Harryanum), a very handsome hybrid, having bronzy-purple sepals and petals, with a narrow yellow margin and a few white markings at the base, and a white lip blotched with purple.

R. Brooman White, Esq.. Arddarroch, Garelochhead (gr. Mr. Smith), sent Cypripedium × Nonpareil, a pretty white hybrid heavily marked with dark purple.

Gurney Wilson, Esq., Haywards Heath, sent Odontoglossum crispum Empress of India, a large and handsomely blotched form, bearing a very fine spike of flowers.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, to which a Silver Flora Medal was awarded. It contained some fine forms of Odontoglossum crispum and various hybrid Odontoglossums, Læliocattleyas and Odontiodas, several plants of the beautiful Trichopilia Backhouseana, Acineta Humboldtii, Bulbophyllum Lobbii, Cœlogyne Rhodeana, several plants of the bright yellow Læliocattleya Elinor, Phaius × Norman and the variety roseum. Octomeria diaphana, the charming little Capanemia uliginosa, with terete leaves and sprays of white flowers, Dendrobium Dalhousieanum, and other interesting Orchids.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including half-a-dozen richly-coloured Cattleya Mossiæ, from a recent importation, C. × mirabile (Lueddemanniana × Mendelii), some very fine forms of C. Schrœderæ, a specimen of Læliocattleya Cholletiana with five spikes, Cypripedium Curtisii, Sander's var., a very large and dark-coloured form, a good form of Dendrobium Wardianum, and other fine things.

Messrs. J. & A. A. McBean, Cooksbridge, received an Award of Merit for Cattleya Mendelii Pearl McBean, a beautiful blush white form, with a purple band on the upper half of the petals, the front lobe of the lip mauve-crimson, the base white and the throat light yellow. They also sent some good forms of Miltonia vexillaria, Odontoglossum crispum and Pescatorei, and a few hybrids.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent Cœlogyne pandurata, a richly-coloured Læliocattleya Dominiana, Cattleya Mendelii and

C. M. Lambeauiana, a pretty white flower with the front lobe of the lip pale lilac.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent Miltonia vexillaria, M. × Bleuana, and several handsome hybrid Odontoglossums.

Messrs. James Veitch & Sons, Chelsea, sent a plant of the pretty little Calypso borealis, which was growing in the centre of a pan of Pinguicula grandiflora, also Brassocatlælia Pink Beauty (L.-c. Hippolyta × B.-c. Veitchii), a pretty pink-tinted hybrid.

Mr. C. F. Waters, Deanland Nurseries, Balcombe, sent a small group of well-grown Odontoglossum crispum, Cattleya Mendelii and other Orchids.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting of this Society, held on May 5th, the quality of exhibits was again very high, six First-class Certificates being awarded. The Committee sat as follows: Messrs. E. Ashworth (Chairman), Thorp, Ward, Cowan, Arthur, Shill, Warburton, Parker, Stevens, Keeling, Holmes, Chapman, and Weathers (Hon. Sec.).

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), staged the finest group, which gained two Silver-gilt Medals. Acineta Humboldtii received a First-class Certificate, and Awards of Merit were given to Cattleya Schrœderæ var. The Queen and Cœlogyne Swaniana. Several plants received First and Second-class Botanical Certificates, and among them the rare Capanemia uliginosa, Eria marginata, &c. The group included many choice varieties of Cattleyas and hybrids, of which I noted Læliocattleya Ingramii, L. purpurata Williamsii, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a fine group of Cattleyas, Lælias, &c., which was awarded a Silver-gilt Medal. Cattleya Mendelii var. Mr. Grahame White and C. M. var. Mrs. Grahame White, both good forms of the typical Mendelii, gained Awards of Merit. A very dark variety of Cypripedium × Chas. Richman, named Black Prince, also gained an Award of Merit. The group included the distinct Læliocattleya × Powellii, C. Mendelii Alice McCartney, C. Mossiæ aurea, &c.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), again staged one of his effective groups of Odontoglossums, crispums of the white type of very good size and shape predominating. I noted a distinct O. × Harryano-crispum, O. × Phœbe, and many other choice hybrids. The group received a Silver-gilt Medal.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), gained a Silver Medal for a choice group of Odontoglossums. O. crispum Earl Grey, O. × eximium mosaicum, and Miltonia vexillaria Warburtonæ all received

Awards of Merit. I noted a very fine plant of Odontoglossum polyxanthum giganteum.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), sent a mixed group, which gained a Silver Medal. Odontoglossum × Aviator, of unknown parentage, gained an Award of Merit. The group included Cypripedium bellatulum var. Princess Clementine, C. b. Queen of Spain (very similar), C. Godefroyæ, and several good Cattleyas.

W. Thompson, Esq., Walton Grange (gr. Mr. Stevens), sent the beautiful Odontioda Charlesworthii superba, which gained a First-class Certificate. Odontoglossum × Wilsoni, Walton Grange var., gained the same award, and O. crispum var. Dorothy Arkle and O. × amabile punctatum received Awards of Merit.

Dr. Hodgkinson, Wilmslow (gr. Mr. Woore), sent four distinct types of Cypripedium bellatulum, ranging from the beautiful C. b. album and C. b. Princess Clementine type to the darkly spotted variety. Læliocattleya Prince of Orange, of rich colour, gained an Award of Merit.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), gained Awards of Merit for Odontoglossum × ardentissimum Leeanum, O. crispum Gloria Mundi, Lee's var., and Cypripedum bellatulum plumptonense, the second plant being of excellent shape, with deep red-brown blotches, and when stronger should develop into a grand variety.

S. Gratrix, Esq., Whalley Range (gr. Mr. Shill), sent a fine Odontoglossum crispum named Samuel Gratrix, of fine proportions, well blotched and with crisped serrated edges (First-class Certificate).

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), gained a First-class Certificate for Odontoglossum crispum Oak Bank, and an Award of Merit for O. × keighleyense, Beeches var.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), sent the beautiful Odontoglossum crispum Leonard Perfect, carrying a fine spike and fully bearing out its reputation as a crispum of the first rank (First-class Certificate), also an unknown seedling called O. × Ronald (Award of Merit).

Mr. Wm. Bolton, Warrington, sent a very effective group of miscellaneous plants, containing types of well-grown Odontoglossum crispum, a fine Cattleya Mossiæ with mottled markings on the sepals and petals, Renanthera Imschootiana, &c. (Silver Medal).

Messrs. J. & A. A. McBean, Cooksbridge, gained an Award of Merit for Cattleya Mendelii Pearl McBean, a specially fine typical Mendelii.

Mr. J. Birchenall, Alderley Edge, gained a Silver Medal for a group, which contained Cattleyas in variety and several choice Botanical species.

Votes of Thanks were accorded to Messrs. Arthur, Robson, Sander, Wrigley, Shackleton, and Keeling for small exhibits. H. THORP.

THE TEMPLE SHOW.

THE Great Spring Show of the Royal Horticultural Society was held at the Inner Temple Gardens from May 24th to 26th, and was again a great horticultural success. The weather was fine throughout, though it turned rather cold and windy soon after the Show opened and remained so to the end. The Orchids, which invariably prove one of the leading features of the Show, were in great force, and all points considered better than on any previous occasion. The awards in this class were very numerous, consisting of four Gold, and three other Medals, five Silver Cups, seven First-class Certificates, seven Awards of Merit, and two Botanical Certificates. The Sherwood Cup was also allotted to Orchids on this occasion. The three most striking novelties were two secondary hybrid Odontiodas from M. Ch. Vuylsteke, and an albino of Cattleya Lawrenceana from Messrs. Charlesworth.

In the following report we have endeavoured to give the salient features of the different groups, but anything like a complete report of such an extensive display is quite impossible. The quality of the exhibits reached a high standard of excellence, and examples of good culture were abundant. The Society and its Officials must be congratulated on the success of their twenty-third Show in these historic gardens.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a magnificent group, in which both species and hybrids were richly represented, the former including a large number of choice rarities. All the plants showed excellent culture, and the group was awarded the Sherwood Cup. The surface was pleasingly varied, and the arrangement may be described as consisting of a central bank and others at each end, with two intervening dells, the larger plants being set up with a background of Asparagus. Specially noteworthy were the numerous choice Odontoglossums, Oncidiums, Miltonia vexillaria, and Phalænopsis amabilis, with a few good Cattleyas and Læliocattleyas, while a batch of Odontioda Bradshawiæ raised at Gatton gave a very brilliant effect. Among the choice things noted were the chaste Odontoglossum crispum xanthotes, O. c. Colmanianum, O. c. Lady Colman, and a curious peloriate variety of the species, some graceful sprays of O. × Thompsonianum raised in the collection, the bright yellow O. × King George V., O. × Astarte (tripudians × Harryanum), O. × Phœbe splendens, O. × Rolfeæ, the violet-blue Dendrobium Victoria-Regina, the graceful D. canaliculatum, several D. aduncum, Odontioda heatonensis, a beautiful Brassocattleya Veitchii, Epidendrum × Boundii, Cymbidium Lowianum concolor, Renanthera Imschootiana, Cattleya × Murrayi, Lycaste lasioglossa, Cochlioda Nœtzliana, Oncidium macranthum, O. pulchellum, the rare Broughtonia sanguinea, Stanhopea

saccata, Brassodiacrium Colmanii, Vanda cœrulescens, Cœlogyne ochracea, Cypripedium × Maudiæ, C. × Olivia, &c., while the numerous rarities arranged in front in a background of moss included the pretty yellow Polystachya pubescens, Nephelaphyllum pulchrum, Octomeria diaphana, the singular Cryptochilus sanguineus, the woolly Eria pannea, Lissochilus parviflorus, Bulbophyllum Lobbii and var. Colossus, B. leopardinum, B. barbigerum, the remarkable B. inflatum with an ovoid inflorescence of green hairy flowers, the graceful Dendrochilum cornutum, Masdevallia × Pourbaixii, M. racemosa, M. tridactylites, the miniature M. O'Brieniana, Cirrhopetalum biflorum, C. Collettii, Scaphosepalum antenniferum, and others too numerous to mention. The group was remarkable in every respect.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), staged a very large and beautifully arranged group, to which a Gold Medal was awarded. The quality was uniformly excellent, and we noted a large number of Cypripedium × Maudiæ, C. callosum Sanderæ and C. Lawrenceanum Hyeanum, which were massed to right and left of a fine series of Miltonias, producing a fine effect. The latter included numerous beautiful examples of M. vexillaria chelseiensis, M. v. virginalis, M. × Bleuana, and M. × Hyeana. Lælia purpurata, Cattleya Mossiæ, Læliocattleyas and Odontoglossums were also well represented, and among other noteworthy subjects must be mentioned a brilliant Brassocatlælia Veitchii with four flowers, a lot of the chaste Cattleya × Dusseldorfii Undine, C. Skinneri alba, C. × Whitei, some good Brassocattleya Veitchii and its white variety Queen Alexandra, many Læliocattleya Canhamiana and L.-c. Fascinator, Cypripedium Lawrenceanum hackbridgense, C. niveum, Renanthera Imschootiana, Disa × Luna, Odontoglossum Harryanum, two clusters of the yellow O. luteopurpureum Vuylstekeanum, O. × percultum, O. hastilabium, many O. Pescatorei, including var. Duchess of Westminster, very regularly spotted with purple, some beautiful forms of O. crispum, Cymbidium × Woodhamsianum, the very richly-coloured Dendrobium × Thwaitesiæ, Veitch's var., Epidendrum × O'Brienianum, Oncidium Marshallianum, the brilliant Odontioda Charlesworthii, O. Diana, O. Bradshawiæ, &c. One very pretty Odontioda which has scarlet flowers on first opening but soon changes to rosy mauve was particularly interesting.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Reynolds), staged a remarkably fine group of Vanda teres, which consisted of between four and five hundred plants, bearing hundreds of spikes of beautiful mauve-purple flowers, with a patch of yellow on the disc. The group was remarkable for culture and floriferousness, and was awarded a Gold Medal.

J. Talbot Clifton, Esq., Lytham Hall, Lanc. (gr. Mr. Float), staged a very fine group, to which a Silver Cup was awarded. It contained a fine lot of Phalænopsis amabilis Rimestadiana, the rare P. sumatrana, a striking form of P. violacea, some good Cattleyas, including C. Mendelii Lady Dorington, C. Mossiæ Reineckeana Hardy's var., C. M. Hardyana, with striped sepals and petals, Aërides Fieldingii, A. falcatum, A. Houlletianum, some good Vanda tricolor, V. Parishii, V. cœrulescens, a lot of Miltonia vexillaria, Lælia purpurata and Odontoglossum crispum, O. × amabile, O. polyxanthum giganteum, Anguloa Clowesii and Ruckeri, Lycaste tricolor, Cochlioda sanguinea, Disa sagittalis, Thunia Marshalliana, Maxillaria Sanderiana, Lacæna bicolor, Spathoglottis × Colmanii, Cymbidium Lowianum and C. L. concolor, Masdevallia bella, M. tridactylites, Miltonia spectabilis radians, M. læve, Saccolabium parviflorum, Bulbophyllum nudiscapum, and a remarkable little Pleurothallis with fleshy leaves, and numerous small orange-coloured flowers. An Award of Merit was given to Læliocattleya Aphrodite var. Max Hambourg, a beautiful white variety, with the front lobe of the lip rich crimson-purple.

His Grace the Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), also received a Silver Cup for a very fine group, containing a lot of Phalænopsis amabilis Rimestadiana in the centre, numerous fine examples of Odontoglossum crispum, O. Pescatorei, and O. × Adrianæ, Cattleya × Empress Frederick, C. × Lord Rothschild, Trichopilia fragrans, Brassocattleya Veitchii, Læliocattleya Fascinator and Canhamiana, Dendrobium Phalænopsis and D. Dearei, Lælia purpurata, L. × cinnabrosa, Cypripedium callosum Sanderæ, and C. bellatulum. An Award of Merit was given to Læliocattleya luminosa magnifica, a very fine form, having orange sepals and petals tinged with purple, and a rich claret-purple lip.

R. Ashworth, Esq., Newchurch, Manchester (gr. Mr. Gilden), received a Silver Banksian Medal for a good group, including Læliocattleya Fascinator, Cypripedium niveum, Odontoglossum crispum, O. Pescatorei, fine forms of O. triumphans, O. × percultum, white and yellow forms of O. × excellens, and a few other good hybrids.

H. J. Craven, Esq., The Beeches, Keighley, Yorks (gr. Mr. Corney), sent the pretty light-coloured Cattleya Mendelii Craveniana.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent a fine plant of the beautiful Odontoglossum × amabile Fowlerianum bearing two sturdy spikes, each with ten rosy tinted and handsomely blotched flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a good Brassocatlælia Veitchii, and Odontoglossum × amabile var. Frederickii, a beautiful white form with dense clusters of brown dots in the centre of the sepals and petals.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent the handsome Odontoglossum × Armstrongiæ in very fine condition, the dark violet-purple blotches being most effective. He also sent the beautiful Cattleya Mendelii His Majesty the King, C. M. Mrs. O. M. Bradshaw, a pretty blush form with the front of the lip magenta, and C. Mossiæ Duchess of Norfolk, a light-coloured form with much orange on the lip.

M. Ch. Vuylsteke, Loochristi, Ghent, staged four remarkable plants all of which gained awards. A First-class Certificate was given to Odontioda King George V. (Odontioda Vuylstekeæ × Odontoglossum × laudatum), a very large soft rosy flower, with a darker reddish blotch at the base of the petals, and beyond it a yellowish line. A similar award went to Odontoglossum eximium Empress of India (crispum × ardentissimum), a very large and handsome form, heavily blotched with violet-purple on white ground. Awards of Merit went to O. × Promereus (crispum × eximium), a very round flower heavily blotched with violet-purple, and to Odontioda Rosy Gem (Odontioda Vuylstekeæ × Odontoglossum × ardentissimum), lighter in colour than the one previously mentioned, and the rosy colour rather more broken into dots. These plants formed a great centre of attraction and interest.

Messrs. Sander & Sons, St. Albans, staged a magnificent group, nearly two bays in extent, which was most effectively arranged in banks and dells, and which gained a Gold Medal. The group was remarkably rich in interesting novelties. The central object was a magnificent example of Cymbidium Lowianum, literally crowded with flowers, and round it were numerous fine Odontoglossums, Læliocattleyas, Phalænopsis amabilis Rimestadiana, Dendrobium Phalænopsis, the chaste Brassocattleya Veitchi. Queen Alexandra, with nine flowers, Odontioda Charlesworthii, O. Vuylstekeæ, Sander's var., a very brilliant scarlet form, O. Bradshawiæ, O. Cooksonæ var. Brilliant, Calanthe veratrifolia, some choice forms of Odontoglossum crispum, O. c. Leonard Perfect, O. × Fletcherianum, O. × Thompsonianum, the handsome O. × amabile Dreadnought, O. × Landolphus (Andersonianum × Rolfeæ), a charming light-yellow hybrid densely spotted with brown, O. × Wilckeanum ardens, Epidendrum Fredericki-Gulielmi, E. × Boundii, E. atropurpureum, some good Anguloa Clowesii, Oncidium crispum, Gardneri, cucullatum and concolor, the remarkable Cirrhopetalum robustum, Dendrobium atroviolaceum, D. nobile Cooksonianum, D. Dearei, D. nobile virginale, Renanthera Imschootiana, Cœlogyne speciosa, Brassolælia Jessopi, Masdevallia ignea, Catasetum tabulare, Eria ornata, a curious Gongora and Mormodes from Peru, Houlletia Sanderi, Ornithochilus fuscus, Disa × Luna, Bulbophyllum Lobbii, a noble plant of Lælia Canhamiana with twenty-five flowers, Lycaste macrophylla, Cattleya intermedia alba, C. × Suzanne Hye de

Crom, the handsome Miltonia vexillaria memoria G. D. Owen, and at the bottom of one of the dells a quantity of the brilliant Sophronitis grandiflora, Cypripedium niveum, Cochlioda Nœtzliana, &c. First-class Certificates were given to Odontoglossum × memoria King Edward VII., a large and handsome hybrid very heavily blotched with claret-purple, and Miltonia vexillaria memoria Baron Schröder (said to have been raised from intercrossing forms of M. vexillaria) a charming pink form, becoming white at the margin of the segments, and having a very handsome claret-crimson blotch at the base of the lip. Awards of Merit were given to O. × eximium Emperor, a large and handsome white form heavily blotched with purple, and to Cattleya Mossiæ Magali Sander, a beautiful white form with rosy markings on the front of the lip. Botanical Certificates were given to Bifrenaria bicornaria, having yellow and brown flowers and the petals prettily spotted, and to Lycaste peruviana (Rolfe), with yellowish flowers, and a prettily fringed lip.

Messrs. Charlesworth & Co., Haywards Heath, also received a Gold Medal for a magnificent group, quality, culture and arrangement being alike excellent. The central bank consisted of a noble specimen of the richly-coloured Miltonia vexillaria Empress Augusta Victoria, with a lot of Phalænopsis amabilis Rimestadiana behind, while those to right and left contained a lot of beautiful Odontoglossums, Lælia purpurata, Dendrobium Phalænopsis, Cattleyas, the brilliant Epidendrum vitellinum, Lælio-cattleyas, &c. We noted a beautiful specimen of Odontioda Charlesworthii with two strong spikes, a nice lot of O. Bradshawiæ, O. Vuylstekeæ and others, with a number of their common parent Cochlioda Nœtzliana, the rare green and blue Disa lugens, D. sagittalis, Satyrium coriifolium, Oncidium pulchellum, Listrostachys arcuata, Ornithocephalus grandiflorus, Catasetum cristatum, Dendrobium nobile virginale, Brassia brachiata, Renanthera Imschootiana, the remarkable peloriate Cattleya intermedia Aquinii with lip-like petals, some fine C. Skinneri and Lawrenceana, C. × Luegæ, Læliocattleya Golden Glory, Cymbidium Lowianum concolor, a good C. Huttoni, Zygocolax Charlesworthii, Odontoglossum × Thompsonianum, the beautiful O. luteopurpureum Vuylstekeanum, O. × Ceres, O. Pescatorei giganteum, O. × Lambeauianum, O. × Phœbe, some fine seedling O. crispum, O. × Fascinator, and many others, Miltonia × Bleuana, Cypripedium bellatulum Queen of Spain, C. × Maudiæ, a fine C. caudatum, Lycaste gigantea, and other good things. First-class Certificates were given to Cattleya Lawrenceana Mary-Regina, a most beautiful white variety with a faint tinge of pink on the front of the lip, and to Sobralia Charlesworthii (provisionally named), a handsome Colombian species nearly allied to S. Ruckeri, and having rich rose-purple flowers, with a broad purple band round the lip and a bright yellow crest. An Award of Merit was given to

Cattleya Mendelii Queen Maud, a beautiful white form with a light magenta front to the lip.

Messrs. James Cypher & Sons, Cheltenham, staged a rich and varied group, to which a Silver Cup was awarded. It contained a fine series of Miltonia vexillaria, Lælia purpurata, Dendrobium nobile virginale, D. Dearei, Cattleyas, Læliocattleyas, &c. We noted a fine clump of Cattleya Skinneri, a series of C. Mossiæ, Mendelii and Schrœderæ, a very fine plant of Dendrobium acuminatum, with a spike of 15 flowers, the brilliant little D. arachnites, D. × Nestor. Masdevallia tovarensis, Veitchiana, muscosa, × Stella and × Hincksiana, Oncidium Lanceanum, phymatochilum, concolor and Marshallianum, Lycaste Skinneri alba, Cœlogyne speciosa, Miltonia × Bleuana, Lælia × cinnabrosa, Læliocattleya Pharos and Hyeana, Cypripedium bellatulum, C. callosum Sanderæ, Epidendrum Boundii × xanthinum, a very pretty orange-coloured hybrid, Dendrochilum latifolium, Odontioda Vuylstekeæ, Cochlioda Nœtzliana, the handsome Odontoglossum × ardentissimum × Harryanum, Phaius × Norman, Brassocattleya Maroni, &c.

Messrs. Stuart Low & Co., Enfield, received a Silver Cup for a very fine and artistically arranged group, rich in Dendrobiums, Cattleyas Mossiæ and Mendelii, Odontoglossum crispum, Lælia purpurata, Læliocattleyas, some beautiful Phalænopsis amabilis Rimestadiana, &c., with a number of rare species. We noted a fine Cœlogyne Dayana, Dendrobium chrysotoxum, D. Parishii, the rare D. nudum, some good D. Wardianum, D. barbatulum, D. nobile virginale, D. × Nestor, Cymbidium Schrœderi, Lowianum and × Lowgrinum, Oncidium Marshallianum, Gardneri, unicorne, pubes and ampliatum, Cirrhopetalum picturatum and Collettii, Cattleya × Parthenia, C. × Dusseldorfii Undine, C. luteola, C. Aclandiæ, C. intermedia cœrulea, Bifrenaria Harrisonæ and var. pubigera, Maxillaria Houtteana, the striking Pleurothallis Birchenallii, Brassia brachiata, Chysis × Sedeni, Scaphosepalum swertiæfolium, Cypripedium niveum and concolor, Masdevallia O'Brieniana, Epidendrum aromaticum, Bulbophyllum siamense and Lobbii, Odontoglossum crispum Graireanum and numerous other fine things.

Messrs. Mansell & Hatcher, Rawdon, Leeds, staged a particularly fine and beautifully arranged group, in which the effect of massing a lot of Phalænopsis amabilis Rimestadiana in the centre, with many plants of the brilliant Renanthera Imschootiana on either side was particularly effective. At the two ends were staged many beautiful Odontoglossums, Cattleyas, Læliocattleyas and other things, making a very picturesque effect. A Silver Cup was deservedly awarded. We noted a fine example of Miltonia × Bleuana, Disa grandiflora, some good Dendrobium superbiens, and a very fine D. × chessingtonense, D. Bronckartii, revolutum, thyrsiflorum and velutinum, Cymbidium × Holfordianum, C. Lowianum concolor and C.

madidum, Scuticaria Hadwenii, Phalænopsis Lueddemanniana, Odontoglossum × Lairessei, O. × excellens, O. × amabile, the charming O. × percultum Fairy Queen, Oncidium Lanceanum, Odontioda Goodsonæ, Læliocattleya Ballii, Miltonia vexillaria, Cœlogyne Rossiana, Cypripedium Godefroyæ leucochilum, C. × Gowerianum magnificum, &c. A First-class Certificate was given to Cattleya Mendelii Princess Victoria, a beautiful blush form with a narrow lilac band inside the crisped margin of the lip.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver-gilt Banksian Medal for a choice group, including a beautiful specimen of Cattleya Skinneri alba, some good Lælia purpurata, Odontoglossum luteopurpureum Vuylstekeanum, O. × Rolfeæ, O. × Groganii, O. crispum xanthotes, O. × excellens, Lycaste Balliæ, Cattleya Mossiæ and Mendelii, Odontioda Vuylstekeæ, O. Goodsonæ, Læliocattleya Ballii, L.-c. Lambeauiana, a fine plant of Bulbophyllum Dayanum, Epidendrum Wallisii, Cymbidium Devonianum, C. Lowianum concolor, &c.

Messrs. Wm. Bull & Sons, Chelsea, received a Silver Flora Medal for a showy and well-arranged group, consisting of banks of Cattleya Mossiæ and Mendelii, Dendrobium Wardianum, Lælia purpurata, Cymbidium Lowianum, Odontoglossum crispum, Pescatorei, and others, with a deep dell in front, in which numerous examples of the charming Odontioda chelseiensis were conspicuous, other interesting things being Maxillaria Sanderiana, Læliocattleya Gen. Baden - Powell, Brassolælia Helen, Odontoglossum × Wilckeanum, O. crispum King George V., a large and richly blotched form, Cypripedium × Tautzianum and × Venus, Cochlioda Nœtzliana, Oncidium Kramerianum, &c.

Mr. Wm. Bolton, Wilderspool, Warrington, staged a pretty little group, including Dendrobium Dearei, Miltonia vexillaria, Odontoglossum Wilckeanum, some good O. crispum, Maxillaria Sanderiana, fine forms of Cattleya Mendelii and Mossiæ, including a remarkably flaked variety of the latter.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, staged a small group, including Cymbidium Lowianum concolor, Oncidium flexuosum, some good Odontoglossum crispum, cordatum, Pescatorei, and × Adrianæ, Miltonia vexillaria, Cypripedium bellatulum, &c.

Mr. J. Robson, Altrincham, staged a fine group, including numerous good Odontoglossum crispum, of which O. c. Evansianum (c. Luciani × c. Graireanum) was a particularly fine and richly blotched form. Miltonia × Bleuana Robsonæ (Roezlii × vexillaria Queen Alexandra) was also a very large and beautiful form, with a rich claret-purple blotch at the base of the lip.

Messrs. James Veitch & Sons, Chelsea, included a number of Orchids in their Gold Medal group of Stove Plants, those noted being the brilliant Læliocattleya Dominiana langleyensis, L.-c. Marcus, Disa × Luna, some

good Odontoglossum crispum, Brassocatlælia Veitchii, Cattleya × Dusseldorfii Undine and C. Mendelii.

Messrs. W. Cutbush & Sons, Highgate, exhibited two interesting hybrid Cypripediums, obtained from C. Calceolus × macranthum and from C. montanum × parviflorum. They also showed a number of C. Reginæ, C. macranthum, C. Thunbergii, and C. Calceolus among other things on a rock garden outside.

A number of hardy Cypripediums, Orchis foliosa, and various other species of Orchis and Ophrys were scattered about in the various groups of herbaceous and rock plants staged in another long tent, where Messrs. Whitelegge & Page, Chislehurst, included about three dozen Odontoglossums, those noted being O. crispum, triumphans, nævium, polyxanthum, sceptrum, × Wilckeanum, × Andersonianum and × Adrianæ.

OBITUARY.

GEORGES MANTIN.—We regret to hear of the death of M. G. Mantin, Chateau de Bel Air, Olivet, France, which took place at Nice on April 28th last. M. Mantin, who was in his 60th year, has been a grower of Orchids for many years, and at one time paid great attention to hybridisation. We do not remember any particular account of his work, though his hybrids are enumerated in the *Orchid Stud-Book*, and his name will long be remembered as the raiser of the beautiful Cattleya × Mantinii, a hybrid from C. Bowringiana ♀ and C. Dowiana aurea ♂, which was described at page 365 of our second volume from photographs communicated by him. The cross was made in 1889. On the same date that this plant was exhibited at Paris about half-a-dozen of his hybrid Cypripedes were also exhibited, this genus being one to which he paid much attention. Of other genera we may mention the following: In 1895 we find Læliocattleya aurelianensis, raised from L.-c. Schilleriana × C. Leopoldi, and in 1896 L.-c. belairensis from C. Bowringiana × L. autumnalis, and Stanhopea × bellaerensis, from S. insignis × oculata. In 1897 we find Cattleya × Chesnelliana from C. bicolor × Bowringiana. C. × olivetensis, from C. Loddigesii × maxima, C. × Heloisiæ from C. Mossiæ × Forbesii, Læliocattleya olivetensis from L. purpurata × C. Forbesii, Epilælia belairensis, from L. autumnalis × E. ciliare, and E.-l. Margaritæ, from L. grandis × E. Parkinsonianum. In 1898 were added Lælia × Mantinii, from L. purpurata × grandis, Læliocattleya La-France, from C. bicolor and L. tenebrosa, and Brassocattleya belairensis from Brassavola Perrinii × Cattleya Leopoldi. In 1901 we find Dendrobium × Mantinii recorded as derived from D. nobile and D. fimbriatum, and said to be the first French hybrid Dendrobium. Many other hybrids were raised, but we have omitted those which proved to be forms of earlier hybrids, as well as the numerous Cypripedes raised in the

collection. M. Mantin also grew a good many botanical Orchids in addition to the usual popular kinds.

EDWARD ROGERSON.—We much regret to hear of the death of Edward Rogerson, Esq., Oakdene, West Didsbury, Manchester, which took place suddenly on May 6th, from heart disease. The deceased gentleman has long been a successful cultivator of Orchids, and a frequent exhibitor at the meetings of the Manchester and North of England Orchid Society. During the last autumn and winter he also staged several interesting groups at the meetings of the Royal Horticultural Society. The collection is principally noted for Cypripediums and Odontoglossums, and we are glad to hear that it is being retained by the family.

LÆLIOCATTLEYA LUCIA.

A VERY interesting flower is sent from the collection of Eustace F. Clark, Esq., Chamonix, Teignmouth. It was raised from Cattleya Mendelii ♀ and Lælia cinnabarina ♂, the cross being made to test the recorded parentage of Læliocattleya Lucia, a hybrid from the Winn collection, which flowered with Mr. Clark and was described in 1899 (*O. R.*, vii. p. 166). The latter had been purchased as a seedling from C. Mendelii × L. cinnabarina, though the appearance of the flowers raised a doubt as to the correctness of the record, for the front lobe of the lip was veined with purple, as in L. purpurata. In the following year Mr. Clark made the cross in question, and one of the seedlings has now bloomed. It is a fine thing, having rich, reddish orange sepals and petals, and a rather lighter-coloured lip, with a very broad deep purple band round the front lobe, and a few dull purple lines in the throat. Mr. Clark sends for comparison a painting of the original L.-c. Lucia, which has paler, more acute sepals and petals, and the front lobe of the lip narrower, more elongated, and veined with purple. He remarks that he finds the pollinia of this original Lucia to be eight in number, and equal in size, as in Lælia, yet the flower is not identical with those of a plant bought as L. purpurata × cinnabarina, which should be a form of L. × Latona. On comparing this painting with one of L. × Latona it is quite clear that both are forms of the same hybrid, and thus the original Lucia becomes a form of L. × Latona. But the name L.-c. Lucia can be retained for the plant exhibited by Messrs. Sander in 1902 as L.-c. Lucia superba (*O.R.*, x. p. 116), which is believed to be correct, and like the one now sent by Mr. Clark. Shortly after Messrs. Sander's plant was exhibited another with the same parentage was shown by M. Balme as L.-c. Lutéce, and in 1904, one by Messrs. Veitch as L.-c. Panope, all being forms of the same hybrid.

The pollen of the original Lucia was also used by Mr. Clark to cross both L. purpurata and C. Mendelii. With the former it has yielded hybrids

almost like small white or cream-coloured forms of L. purpurata, with a little yellow on the disc and more purple on the front lobe. The cross with C. Mendelii remains to be proved, for the first bud was broken off.

It may be added that Mr. Clark also bought from the Winn sale seedlings recorded as crosses of L. cinnabarina with L.-c. elegans, and L.-c. Schilleriana, and as the two latter are half L. purpurata some of their hybrids might revert to L. purpurata, though one would expect to find also reversions towards the Cattleya parents. There seems to have been some confusion with the records or seedlings.

EPIDENDRUM × KEWENSE: A MENDALIAN EXPERIMENT.

AN inflorescence of the self-fertilised Epidendrum × kewense, whose history has already been given (*O. R.*, xvii., pp. 13, 37, 69), has been sent by Mr. C. C. Hurst, Burbage, Hinckley, this being the only one showing signs of flowering at present. The colour may be described as cerise, with a bright yellow crest, and thus is much richer in colour than those previously recorded. Several additional forms have also flowered at Kew this season, and it may be interesting to put their characters on record. Seven of them flowered together, and as E. × kewense and the secondary crosses with the original parents were also in bloom, a flower from each was taken and carefully compared. They were laid in a row, with E. × kewense in the middle and the two secondary crosses at each end, forming almost an arc of colour connecting the two original species. These were not available at the moment, but including them the series may be thus described. E. xanthinum, bright yellow, crossed with E. evectum, deep purple, gave E. × kewense, a salmon-coloured hybrid. E. × kewense recrossed with E. evectum gave a bright purple hybrid, a reversion of about three-fourths towards E. evectum, and E. xanthinum crossed with E. × kewense gave an orange-yellow hybrid, nearest to E. xanthinum, but rather deeper in colour. The seven seedlings from E. × kewense were as follows: Three showed more or less reversion towards E. evectum, (1) pale purple with a slight whitish mottling, (2) light rosy purple with a yellowish mottling, and (3) rosy purple with less yellow. The flower sent a little earlier by Mr. Hurst was darker still, being cerise. The four reversions towards E. xanthinum were: (1) light salmon colour with more yellow than E. × kewense, (2) slightly paler than last, (3) light yellow, with salmon colour on the inner halves of the lateral sepals, and a little mottling elsewhere, and (4) whitish yellow with a slight purple suffusion. One that flowered last year was primrose-yellow. No two were really alike. It represents a very clear case of dissociation of the original specific characters.

R. A. R.

VANDA CŒRULEA.

THIS beautiful Orchid often proves disappointing to cultivators, either from a difficulty of knowing how to treat it or of supplying the proper conditions. Lieut.-Col. Rippon, F.R.H.S., however, gives the following interesting information concerning it. Writing from Kala, in the South Shan States, he says: "*Vanda cærulea* grows here on several species of trees from ten to forty feet above the ground. As a general rule the rainfall averages about forty-five inches and falls from the middle of April to the end of September fairly regularly. Some heavy showers come in October, and, generally, a wet spell of a few days occurs in either November or December. It flowers from the end of July to late in September. It seeds freely, and likes its roots to be in the shade, while the flower spike frequently finds its way outside the foliage of the tree where there is a gap. Too much shade makes the flowers very pale. The roots grow to two feet or more in length and adhere closely to the bark of the trees. It does not appear to mind whether the wood is dead or not. I think some of these fleshy-rooted Orchids suffer at home from their roots being confined, and (generally) kept wet. Out here, tied to a bit of the trunk of a tree or thick branch, they grow to perfection. This year I had a dead branch about three feet six inches long with fourteen sprays out at one time. This, of course, is exceptional, and is the best I have ever seen. When not flowering the branch is fastened up perpendicularly, or nearly so, so that the sprays pointing upwards are shown off well when brought inside the house.—*Journ. Roy. Hort. Soc.*, xxxv. p. 397.

ORCHIDS IN SEASON.

A FLOWER of the striking Odontoglossum crispum Mrs. Wm. Thompson is sent from the collection of W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens). It has rather elongated sepals and petals, and has the curious character that the cluster of red-purple blotches on the lower two-thirds of the sepals and petals are distinctly elongated, or more or less confluent into elongated bands, instead of roundish blotches. There are many small round spots on the lip. The plant has flowered well this year.

A light-coloured form of the striking Catasetum fimbriatum is sent from the collection of Mrs. T. Fielden, Grimston Park, Tadcaster, by Mr. Bound. The spike bears twelve flowers, and one of them is borne on a short side branch at the base, an unusual character in Catasetum.

Dried flowers and a sketch of the curious Dendrobium crumenatum are sent by Dr. J. F. Shafer, Pittsburg, Pa., U.S.A. The plant is said to have come from the Philippines a year ago, and to flower freely on the old and new bulbs. The flowers are white, with a pale yellow band running down

the lip, and very fragrant, but only last a few days. The species is rather widely diffused and is known as the Pigeon Orchid at Singapore, from the shape of the faded flowers.

A very pretty hybrid × Paphiopedilum is sent from the collection of R. Brooman White, Esq., Arddarroch (gr. Mr. Smith), but unfortunately the parents are not known. The flower is yellowish-white, closely veined, and reticulated all over with dark reddish purple. It is very near to P. × Vipanii, but rather larger and darker in colour. Unless it is a form of that, we should suggest P. niveum and P. Rothschildianum as the probable parents, for both the shape and colour are suggestive of such a cross.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during June, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is the Great Summer Show to be held at Holland House, Kensington, on July 5th and 6th.

The Manchester and North of England Orchid Society holds its last meeting of the session and the Annual General Meeting on June 2nd. We have not yet received the programme for the coming session.

The fine groups of Orchids staged at the Temple Show by Messrs. Mansell & Hatcher and by Messrs. Sander & Sons are figured in the *Gardeners' Chronicle* for May 28th (pp. 352, 354).

ORCHID PORTRAITS.

CATTLEYA × ENID VAR. KARTHAUSII.—*Gard. Chron.*, 1910, i. p. 349, with suppl. fig.

CATTLEYA INTERMEDIA AQUINII.—*Gard. Mag.*, 1910, p. 413, with fig.

CŒLOGYNE LAWRENCEANA.—*Gard. Chron.*, 1910, i. p. 335, fig. 143.

CYMBIDIUM INSIGNE, Rolfe.—*Bot. Mag.*, t. 8312.

LÆLIOCATTLEYA DIETRICHIANA.—*Rev. Hort. Belge*, 1910, p. 133, with plate.

MILTONIA × BLEUANA, HESSLE VAR.—*Journ. Hort.*, 1910, i. p. 437 with fig.; *Gard. Mag.*, 1910, p. 393, with fig.

MILTONIA × BLEUANA QUEEN MARY.—*Gard. Chron.*, 1910, i. p. 351, fig. 151.

MILTONIA × MEMORIA BARON SCHRODER.—*Gard. Chron.*, 1910, i. p. 355, fig. 155.

MILTONIA VEXILLARIA × ODONTIODA VUYLSTEKEÆ.—*Rev. Hort. Belge*, 1910, p. 150, with coloured fig.

ODONTIODA KING GEORGE V.—*Gard. Chron.*, 1910, i. p. 349, fig. 150.

ODONTIODA VUYLSTEKEÆ × ?.—*Rev. Hort. Belge*, 1910, p. 150, with col. fig.

ODONTOGLOSSUM × AMABILE.—*Rev. Hort. Belge*, 1910, p. 150, with col. fig.

ODONTOGLOSSUM × ARDENTISSIMUM VAR. HERBERT GOODSON.—*Journ. Hort.*, 1910, i. p. 461, with fig.

ODONTOGLOSSUM CRISPUM MAGNUM BONUM.—*Gard. Mag.*, 1910, p. 392, with fig.

ODONTOGLOSSUM × MACULATISSIMUM.—*Rev. Hort. Belge*, 1910, p. 150, with col. fig.

ODONTOGLOSSUM × MEMORIA KING EDWARD VII.—*Gard. Chron.*, 1910, i. p. 353, fig. 153.

ODONTOGLOSSUM PESCATOREI (spotted).—*Journ. Hort.*, 1910, i. p. 389, with fig.

ODONTOGLOSSUM ROSSIANÆ VAR. RUBENS.—*Journ. Hort.*, 1910, i. p. 413, with fig.

ODONTOGLOSSUM × VUYLSTEKEÆ.—*Rev. Hort. Belge*, 1910, p. 150, with col. fig.

VANDA SUAVIS PALLIDA, CLIFTON'S VAR.—*Gard. Chron.*, 1910, i. p. 298, with suppl. fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

E. R.—We cannot find any record of the fertilisation of Anguloa, but suspect it is accomplished by the agency of some large bee, and that the mobile lip is of importance in the process.

C. J.—Polystachya leonensis, Lindl., and either a form of Odontoglossum triumphans or an anomalous form of O. × harvengtense, the hybrid with O. crispum. It should be taken care of.

A. C.—Miltonia lævis, a species formerly known as Odontoglossum læve. See *O.R.*, xii., p. 300. A note on the Odontoglossum is held over.

H. G. A.—Cattleya intermedia, with some purple flakes in the lateral sepals and one petal; also one united to the side lobe on the lip. The abnormal character may not be constant.

L. J. S.—Otiorhynchus sulcatus. Not a special Orchid beetle, but does much damage among succulent plants, probably not disdaining Orchids. They feed at night. Hand picking is the most effective remedy.

Photographs received, with thanks.—Ch. & Co., J. C., B. F.

Two or three Notes are unavoidably held over through pressure on our space.

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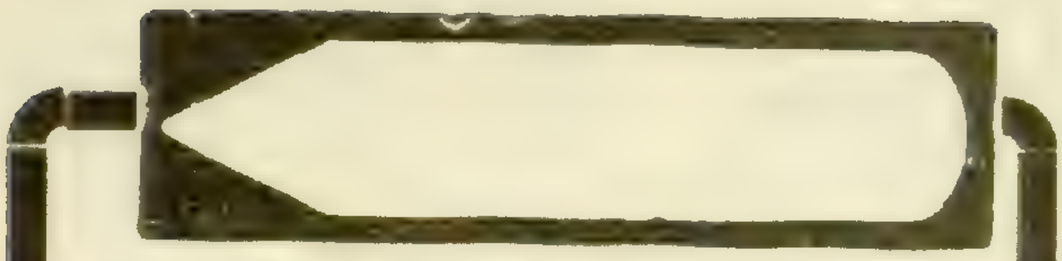

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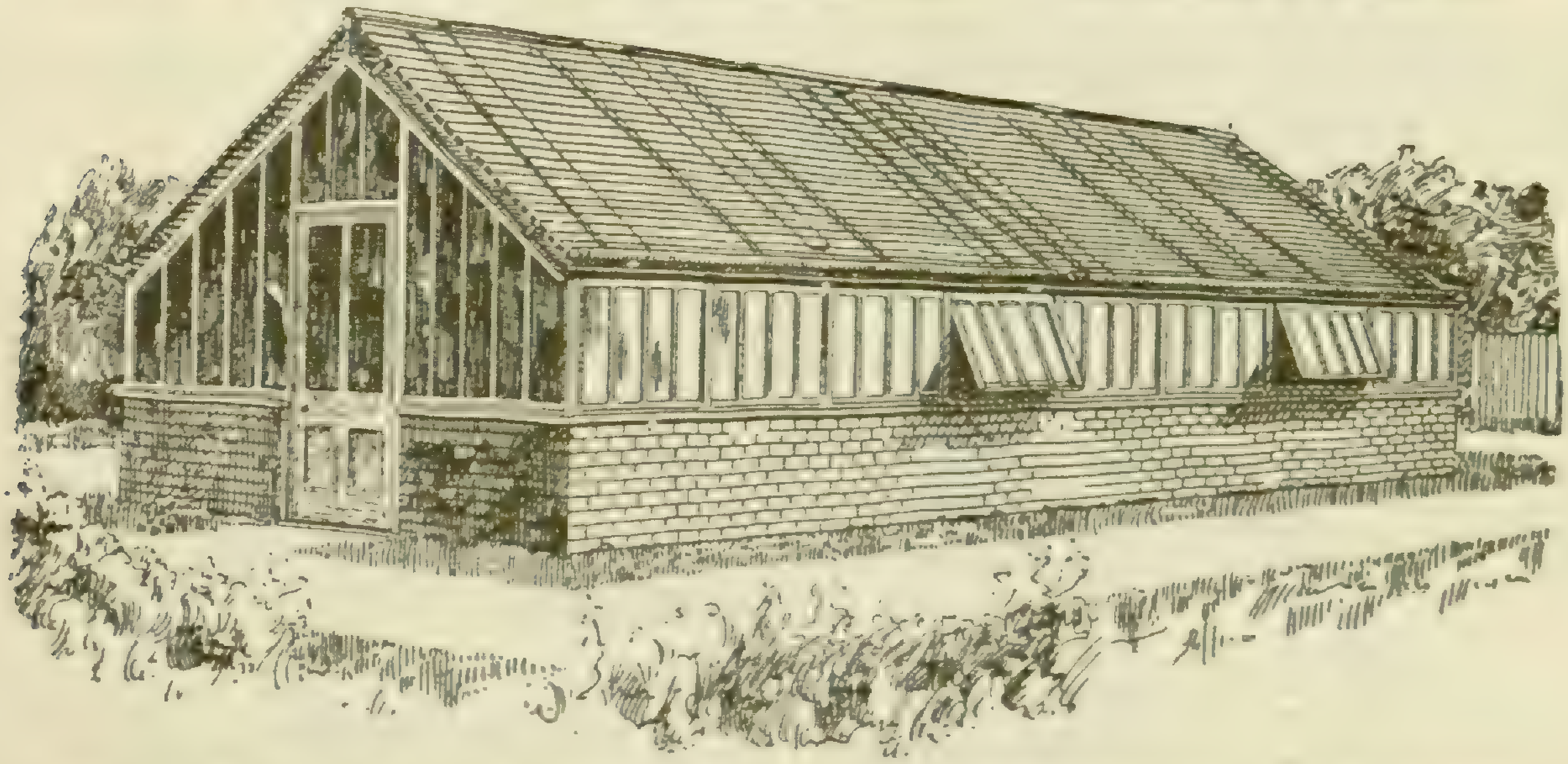

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VOL. XVIII.] JULY, 1910. [No. 211.

THE ORCHID REVIEW:

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THE ORCHID REVIEW.

VOL. XVIII.] *JULY*, 1910. [No. 211.

A CYPRIPEDIUM HOUSE.

THIRTY years ago, as a small boy, I read an article on "Orchis Hunting" in *The Boy's Own Paper*. I had never seen an Orchid, and had no chance of seeing one at that time, but the writer's treatment of the subject charmed and slightly mystified me, and afterwards I read all the very little that came in my way on Orchids. Gradually the desire to grow Orchids "some day" seized me, but it was not until 1906 that I was able to carry out my wish.

Before giving an account of my experiences and methods I must explain that I never saw a growing exotic Orchid until I bought my first plants. I had no knowledge of gardening, and had to teach myself from books and with the generous help of an expert friend, to whom I wrote whenever I got into a difficulty. I have only seen one private collection. Therefore if I say that such or such an Orchid does well with me I must be understood as comparing it with the few other plants of the same species which I have seen.

Soon after I commenced I was given a complete set of the *Orchid Review*, which I found of the greatest value. I feel very greatly indebted to the Editor and the many able contributors to the *Review*. The volumes have been a great help to me and a constant source of information and pleasure. I have benefitted by the use of Mr. Burberry's valuable *Amateur's Guide*, and lastly, but not least, I have to thank my friend, Mr. E. Cooper, of Messrs. Sander & Sons, for his unwearying kindness in giving me advice and information.

My first venture was 22 plants, which I tried to grow in a very unsuitable glass house. This house soon failed me, and I therefore built a house, 16ft. by 10ft. (about 2,200 cubic feet capacity), on a sunny bank, partly sheltered by bushes, fences, and buildings on the N., E., and W., on the top of a hill 200ft. above and three miles from the sea. The house runs east and west, and has a full southern exposure. It was built by a joiner under my instructions, and has many faults, the chief being that it "drips" badly, owing to condensation. I understand now that there are various ways of preventing drip, and I would strongly advise any beginner building an Orchid house to go to any reasonable expense to avoid this trouble.

The door opens directly into the house, and I often wish that I had built a small glazed porch with a second door to lessen the inrush of cold air when entering the house in winter.

I use a small horseshoe boiler (nominal heating power 150ft. 4in. piping) built into the wall of the house, and about 100ft. of 4in. piping in three rows; this is equivalent to 45·5ft. of piping per 1,000 cubic feet of house, barely enough for my purposes; 130ft. or 60ft. of piping per 1,000 cubic feet, and a rather larger boiler would have been better. This may seem a large amount of piping, but it must be remembered that a small house has a greater surface in proportion to cubic capacity, and can therefore lose heat more rapidly than a large house, just as a child loses heat more rapidly than an adult.

The boiler must have a nominal capacity considerably greater than the amount of piping it has to supply. I find that the larger the boiler, within limits, the easier it is to keep the temperature steadily at the point desired, whether high or low. With my present boiler I can keep the temperature of the *pipes* at 95°-100° F. without the fire going out. With a larger one and more piping I could, if necessary, keep the pipe temperature still lower. Of course in larger installations there are means of shutting off pipe heat from a house, but I do not understand that these are applied to small single houses. I believe it would be possible to devise a cheap and simple system for a small house by which pipe heat could be shut off without letting the fire go out, and such a system would be of considerable value.

I have adopted Mr. O. O. Wrigley's admirable plan of using thermometers to measure the heat of the pipes (see *O. R.*, vol. iii. p. 87). To avoid the expense of fitting the thermometer to the pipes I fixed a metal tube of 1in. diameter in the lid of the expansion box. This tube rises to the level of the upper surface of the stage, so that its opening is readily accessible. A chemical thermometer fixed by perforated corks in a tube of $\frac{5}{8}$in. diameter is lowered into the tube in the expansion box to such a point that the bulb is between the openings of the flow and return pipes. The tube containing the thermometer is corked at its lower end, and a portion of the side opposite 70°-180° F. on the thermometer is cut away so that the thermometer may be read. The bottom of the tube must be corked so that when the thermometer is lifted it brings enough hot water with it to keep the mercury from falling while an observation is being taken. The thermometer should be kept in the expansion box. After a year or two it may become inaccurate, but it can be replaced cheaply. The whole apparatus as I made it need not cost more than 2s. 6d. A cheaper form still can be constructed by passing a chemical thermometer through a hole in the cork of a small, wide-mouthed bottle and suspending the latter by a wire hook in the expansion box. The cork in the bottle should be perforated in several places to allow free ingress

and egress to the water, and the cork must be fastened to the bottle with copper wire. This apparatus greatly simplifies the management of the fire, and I strongly advise every amateur to use it. I have never been able to understand why Mr. Wrigley's invention is not more generally used. The maximum pipe temperature required is generally about 120°-130° F.

The boiler uses about 2 cwt. of coke and a few pounds of coal dust per week in winter; the consumption of fuel is considerably less in summer.

Very soon after starting the new house I found that the severe autumn gales produced fluctuations of temperature that I could not control. I therefore fitted one side and both ends of the house with a system of light external wooden shutters, each kept in place by a wooden bead and turn button. The side shutters fit either side of the house, and all the shutters are small enough to be easily handled by one person.

I use covers on the house, made to roll lengthwise along the roof. The most suitable material I have found is stout felt, as sold for laying under carpets, 52in. wide, at about 1s. 9d. per yard. A cover lasts me at least two years, and probably three, with a little care. I never dry my covers, and, if frozen too stiff to move, I leave them until they thaw.

These shutters and covers form a most valuable system of defence, as rapid fluctuations or falls in temperature are absolutely prevented, and "drip" is very greatly lessened, the roof being kept too warm to allow rapid condensation. For example, on leaving the house on a mild night in winter or spring, if I expect frost or severe wind before morning I do not leave a very hot fire, but put on the covers and shutters. They do not make heat but merely retain it. With care, and a little experience, the fire can be so regulated that, in conjunction with the covers, a gentle and regular fall in temperature to almost any desired point may be confidently expected. In the event of very sudden and unforeseen changes in the weather, or in the rare event of the fire going out, the shutters, &c., prevent any serious fall in temperature. The chief agents in producing rapid falls in temperature, and therefore drip, are, of course, wind and cold rain; frost alone is not of much importance. The whole system of covers and shutters can be applied in less than ten minutes.

I have the covers, &c., always ready to hand, and use them in whole or part whenever necessary, winter or summer, night or day. They are, of course, rarely required in summer, except on occasions when a very cold night follows a very hot day; in such a case I use as much covering as I think is required. It is a mistake to aim at a fixed night temperature according to the calendar. The night temperature should be in proportion to that of the preceding day. I use a minimum winter night temperature of about 62° F; winter day maximum, about 70°-75° F. The summer day maximum depends on the sun and the weather, rarely going above 90° F.

or below 75° F. Generally it is about 85° F. Summer night minimum about 68° F.-70° F.

The fire is hardly ever allowed to go out by day except in the hottest summer weather, and it is always alight at night whatever the weather. It gives less trouble thus, and is always at hand to check a sudden fall in temperature. A little warmth in the pipes allows of a freer use of the ventilators, even during the day, than would otherwise be safe. As previously indicated, the pipes can be kept down to 95° F., and on a hot spring day the house frequently stands at near 90° F. for hours. On such a day a very great fall in temperature must generally be looked for towards evening and prepared for by allowing the temperature of the pipes to rise before the fall is expected. If the outdoor, indoor, and pipe temperatures, the force and direction of the wind, and the nature of the fire, are constantly noted for a time, it becomes very easy to maintain any temperature that may be required, and the probability of drip may be foreseen and guarded against. I use several thermometers in different parts of the house. It is necessary to find suitable places for thermometers; they will not tell the truth if exposed to sunlight or even when hung near a mass of brick or woodwork at a higher temperature than that of the house.

I use as much bottom ventilation as the weather and the necessity for maintaining a sufficiently moist atmosphere allows at all seasons, but not all day. I like to open one or two top ventilators on any really mild day about noon in winter for, say, five minutes. In summer one or two top ventilators are left open for an hour or two at midday on warm days, and on the leeward side, but generally I use the top ventilators with great care, as they are specially apt to produce draughts and an excessively dry atmosphere.

I regulate the moisture in the atmosphere by the hygrometer (it is hopeless for an amateur to try to do without this instrument) and observation of the weather. During most of the day in summer I try to keep about 2°-3° below saturation; for an hour or two at midday the atmosphere may be allowed to get considerably drier. In winter I keep the atmosphere nearly as moist as in summer so long as too much drip is not produced. If there is much drip, or the spray has accidentally been used too heavily, I keep the hygrometer at 6°-7° below saturation for an hour or two, in order to allow the axils of the plants to dry.

On warm spring and summer days I use a fine spray in the morning and afternoon, but with great caution, lightly, and with due regard to the weather expected. All the plants benefit by the use of the spray, but it is better to let a hot day pass without using the spray than to risk the accumulation of water in the growths of C. bellatulum and its allies. The cool Cypripedes are much less sensitive to injudicious spraying, &c. Too

abundant moisture may be cleared out of the growths with a small paint brush, but it is still better not to let it accumulate at all.

The staging is of open woodwork, and there is an under-stage of large porous tiles on a rough wooden frame immediately above the pipes, and about 18in. below the plants. The under-stage is about 2ft. wide, and does not reach the walls of the house. The floor of the house is earth and gravel.

All water for the plants is taken from rain water casks collecting from the roof of the dwelling-house. I once found a house painter on the point of washing a very dirty paint brush and can in the cask. I am sorry to say that it is only by constant watching when workmen are about the place that I can keep the casks from contamination with paint, oil, mortar, &c. Water for the plants always stands in the Orchid house for at least 24 hours before use. Ordinary white earthenware slop-pails are very good for containing the water, as they cannot contaminate the water, and when filling them any harmful matter is seen at once. On one occasion I watered a pot of C. concolor accidentally with ice cold water; by following this up at once with a large amount of water at the correct temperature no harm ensued.

Water is given to the plants about two or three times a week as they seem to need it. It is hardly possible to say how often plants should be watered, that depends on the size, rate and stage of growth and the species of the plant. The size of the pot, the nature of the compost, and the time of year are also important factors. In short, each plant must be treated individually. I find that most Cypripedes will stand being kept rather dry at the root for several days if necessary. On a very cold day in winter, or if the temperature of the house is too low, I never hesitate to postpone watering to another day, even if the plants are fairly dry.

For two years past I have been experimenting on a method of watering which has been successful in my hands, and I will describe this after I have given an account of the system I employ in potting C. bellatulum, its allies, and some others.

I have tried the use of manure (sheep) water on a good many plants, but I was never very sure that it did any good, and it certainly seemed to render the compost more likely to go wrong.

A manure which I have used and am inclined to think is worth further trial is the whole natural waste of the plants, dead leaves, flower stalks, old roots, &c., reduced to pure ash, not merely carbonised. A little of this ash is sprinkled on the compost of a plant that is making growth after watering. I keep the debris of each class of plants separate, and use Cypripedium ash only for Cypripedes. From the experiments I have made I imagine that this method may be almost more useful for Epiphytes, to which I understand there is at times a difficulty in supplying as much suitable food

material as the plant is able to assimilate, than for Cypripedes. I am not inclined to think that pure ash of its own or nearly allied species can, if applied in moderation, do any plant harm.

As I have mentioned dead leaves, I may say here that I never remove a leaf dying of old age, if it is in an otherwise healthy state, until it has become so dry that it is clear that all connection between it and the plant is cut off. If only dry in part that part may be removed. I do not believe that there is much, if any, waste in Nature, and I think it is permissible to suppose that the plant may receive various substances from leaves dying normally, which it makes use of; *e.g.*, the old leaves may act as a reserve of material which can be called up by the new growth during flowering, or, to venture on what may seem a wild speculation, it is possible that substances from the old growths when absorbed by the new growths may stimulate or determine the period of flowering, or they may act as extra food during flowering. I have noticed many cases of old leaves dying in unusual numbers about the time the buds begin to show.

MILES JOHNSTON.

(To be concluded.)

VANDA × CHARLESWORTHII.

A FLOWER of an interesting Vanda is sent from the establishment of Mr. C. F. Karthaus, Potsdam, Germany, by Mr. R. Blossfeld, who remarks that it has flowered out of a batch of V. cœrulea, which it resembles in habit, but from the different floral character he thinks it is very likely a natural hybrid. It is a form of V. × Charlesworthii, which originally appeared as a single plant in the establishment of Messrs. Charlesworth & Co., in May, 1894, and was exhibited at the Whitsuntide Show at Manchester (*O. R.*, ii. p. 182). Shortly afterwards a plant appeared with Messrs. Hugh Low & Co., also as a single specimen, in an importation of V. cœrulea from Burma, and the plant was described as a natural hybrid between that species and V. Bensoni (*l. c.*, p. 322), its intermediate character being pointed out, also the fact that the two species were known to grow together. Since then a few other plants have appeared among importations of the species. The flower now sent measures $2\frac{3}{4}$ inches across its broadest diameter, and is thicker in texture than in V. cœrulea. The sepals and petals are broad, and have a yellowish white ground colour, dotted and reticulated with lilac-purple. The lip has a pair of broadly rounded apical lobes, with three obtuse fleshy keels on the disc, the front half being lilac-purple, and the base lined with the same colour on a white ground. The side lobes are white, and there are two orange-yellow blotches on the foot of the column. It is a distinct and very pretty hybrid.

R. A. R.

ORCHIDS AT FAIRLAWN, PUTNEY.

A COLLECTION of Orchids which has frequently been represented at the meetings of the R.H.S. during recent years is that of H. S. Goodson, Esq., Fairlawn, Putney, some notes of which have appeared in these pages (*O. R.*, xiv. pp. 353-356; xv. pp. 262-263). Calling on Mr. Day a fortnight ago we found a number of fine things in flower, especially in the Cool house, where a fine lot of Odontoglossums and allied genera are grown. The brilliant little hybrid genus Odontioda was well represented, four plants of the charming O. heatonensis being in bloom, bearing several spikes of pink and white flowers, in which the characters of Cochlioda vulcanica and Odontoglossum cirrhosum are combined. It has been crossed with Odontoglossum × eximium and O. × Harryano-crispum, and if seedlings are obtained some interesting forms should result. A plant of O. Charlesworthii carried two spikes of very richly-coloured flowers, and O. Devossiana was throwing up a fine spike. The brilliant O. Bohnhoffiæ was in bloom, and the dark-coloured O. Ernest-Henry in bud. Various others not just then in bloom were pointed out, for the genus is represented by a fine batch of plants, in thriving condition.

Odontoglossum crispum was represented by a fine series of white and blotched varieties, the former chiefly selected from a large lot of imported plants. O. c. xanthotes was in bloom, and the finer variety Charlesworthii was throwing up a good spike. O. c. Prince Albert is a richly-coloured variety derived from two blotched forms. In O. c. Mrs. E. C. Bourdas the blotches on the sepals are orange-brown and those of the petals red-purple, forming a distinct contrast. O. c. President Fallières is a pretty form with rather light-coloured blotches. O. c. The Mikado is another good form with light blotches. Four different forms of O. × armainvillierense were in bloom, showing considerable variation in the size and arrangement of the blotches. O. × amabile was represented by three fine varieties, Rosetta having a rosy ground colour, and the brown spots at the base of the petals thickly aggregated together, while Frederickiæ has a somewhat similar arrangement of red-brown spots on a white ground. O. × Captain Humphreys is a well-blotched form of doubtful parentage, though the characters of O. Harryanum and O. crispum are very obvious. O. × eximium radium is almost suffused with red-brown except at the whitish margin. Five forms of O. apterum (nebulosum) were in bloom, and showed much variation in the amount of spotting. Among others in flower we noted forms of O. × Andersonianum, triumphans, Hunnewellianum, Harryanum, luteopurpurem, × Lambeauianum, &c., while O. × Wiganianum was producing a very fine spike, of which the bottom flower was just expanding, the colour being bright yellow, blotched with brown.

Oncidium macranthum was represented by plants in flower and bud. A batch of plants was purchased last year, most of which have not yet bloomed, and it is evident that all are not alike. It will be interesting to see what other species the batch contains. The distinct and striking O. cucullatum was also in bloom, with several plants of the brilliant Cochlioda Nœtzliana, with which a few hybridisation experiments are being made. Cymbidium Lowianum was also in bloom, with a few good plants of Masdevallia ignea, a good plant of the tiny M. O'Brieniana with many blooms, the brightly-coloured M. × Rushtoni, and M. muscosa, remarkable for its mossy peduncles and sensitive lip.

Cattleyas and allies are grown in quantity, and the collection contains a large number of choice things. About eighteen plants of C. Rex were in thriving condition, and in several cases buds were already showing in the sheath. Among those in flower were Cattleya Mossiæ Wageneri and a paler form, C. M. Mrs. A. Goodson, with striped petals, the richly-coloured C. M. King Edward VII., C. Mendelii Lambeauiæ, with the front of the lip lilac, C. × fulvescens, Læliocattleya Martinetii, L.-c. × Eva (L. tenebrosa × C. Gaskelliana), L.-c. Ballii, L.-c. highburiensis, L.-c. Canhamiana, Brassolælia Helen, a light-coloured form of Lælia × Iona, L. × Pacuvia, Miltonia Roezlii alba, forms of M. vexillaria and × Bleuana, and other good things. A fine series of Sophrocattleyas and Sophrolælias were pointed out, with a lot of albino Cattleyas. We noted capsules on Cattleya × Hardyana The Baron, and on some of the Brassocattleyas and Brassolælias, these being very distinctly beaked as in the Brassavola parent.

A small Warm house contained a plant of the rare Dendrobium Williamsianum, with its violet-blue lip, also Pescatorea Dayana, Warscewiczella Wailesiana, with Chondrorhyncha Chestertoni in bud, while elsewhere we noted plants of Lycaste Deppei, brevispatha and leucantha in bloom, with Lælia × Latona, Cœlogyne Massangeana, Dendrobium infundibulum, Cypripedium Dayanum, Curtisii, Curtisii nobilior, with much more white in the foliage, C. × superciliare, C. × Swanianum, C. Lawrenceanum, &c. We noted here some plants of Phaius Wallichii Sanderi and P. × Norman in thriving condition.

Some of the plants are moved to the conservatory when in bloom, and there we noted some good Cattleya Mossiæ, Lælia purpurata and tenebrosa, Masdevallia ignea, Odontoglossum crispum and Hallii, Cypripedium Lawrenceanum and Curtisii, Calanthe veratifolia, and others, making a bright display.

Mr. Goodson has paintings of most of his certificated and choice varieties, these being framed and suspended in a small study, forming quite a picture gallery, and enabling the characters of the different forms to be compared when not in flower together in the houses.

CATTLEYA LAWRENCEANA VAR. MARY-REGINA.

WE have much pleasure in giving an illustration of the chaste and beautiful Cattleya Lawrenceana var. Mary-Regina, which received a First-class Certificate at the recent Temple Show, as recorded at page 184. A photograph, natural size, has been kindly sent by Messrs. Charlesworth & Co., the exhibitors, which is here reduced by one-third. The flower is pure white, with a faint tinge of pink on the front of the lip. In other respects it conforms to the type. The species seems very little subject to variation, for when at Meirelbeke two years ago M. Pauwels pointed out one rosy-

Fig. 13. CATTLEYA LAWRENCEANA VAR. MARY-REGINA.

lilac variety as the only one seen among his large importations (*O.R.*, xvi. p. 163). And the described varieties are but few. The first was concolor (*Gard. Chron.*, 1886, i. p. 585), which appeared with Mr. F. A. Philbrick, of Oldfield, Bickley, and was described by Reichenbach as having lilac-purple flowers with the lip concolorous. Messrs. Veitch added two others in 1887 (*Man. Orch.*, ii. p. 41), namely rosea-superba and oculata. The first appeared in the collection of Baron Schröder, and is described as having larger flowers, of a delicate rosy purple striated with white, and the sepals paler than the petals and lip, the disc of which is white. The origin of the variety oculata is not stated, but it is said to have the central area of

the lip buff yellow, and the usual purple band absent. In 1895 var. Vinckeana was exhibited by Baron Schröder, and is described as having lavender-coloured sepals and petals, and a dull slaty-purple lip (*O. R.*, iii. p. 159). Shortly afterwards M. Jules Hye received an Award of Merit for the variety atrorubens (*O. R.*, iii. p. 190), a form having a very richly-coloured lip. Lastly we have the beautiful albino which is the subject of our illustration. Thus we find that as regards variability C. Lawrenceana stands in rather marked contrast to most of its allies of the C. labiata group.

CALENDAR OF OPERATIONS FOR JULY.

By W. C. PRICE, Oakdene, West Didsbury.

THE principle work to be done this month will be watering, damping, and cleaning. It is important that the plants have a sufficient supply of water at the roots, and the atmosphere sufficiently charged with moisture to meet all requirements. They should never be allowed to approach dryness at this season. Keep a good growing atmosphere in the houses. An experienced grower can always tell when entering a house, by the feel of the atmosphere, whether it is suitable for the plants, and a beginner may acquire the same by duly noticing the behaviour of his plants and the state of the house from time to time. If a house feels uncomfortable to the grower personally, he may be sure that it is also uncomfortable for the plants. I have often thought, when reading the cultural rules given in different papers upon plant growing, that some people may follow these rules blindly, without stopping to think whether the conditions are the same as those at the writer's place. There are many instances where a slight departure from the general rules is advisable, but this is a matter that must be left to the grower, who naturally is in the best position to judge of its being necessary. To draw a hard and fast rule, and follow it year after year, regardless of climatic and other changes, is not a sensible thing to do, and a little practical experience will help the grower in modifying the treatment as circumstances require.

A sharp watch should be kept for insect pests. A good plan is to keep a sharp look out when watering the plants each morning, and every plant that requires it should be stood on one side, to be sponged immediately after watering is finished. By doing this you never get a plant badly infested. When sponging at this period only sufficient insecticide to colour the water should be used, the young foliage being very tender, and great care should be taken so as not to bruise or break them, and so make the plant unsightly. Tie up all young growths that need it, and see that they are not tied too tightly. Let them have plenty of room for swelling as they grow, for if they are tied too tightly the tie will cut into the bulbs, and if not noticed in time will greatly interfere with their development.

ANGULOAS will now be in flower, and should have copious supplies of water, which should be continued until the bulbs are fully made up, when the supply must gradually be reduced. The plants should be frequently examined for the large white scale, which is easily removed with a moist sponge.

BIFRENERIA HARRISONÆ is now growing freely, and, if in need of new material, should now be repotted, using Osmunda fibre for compost. Pot moderately firmly, and water sparingly till well rooted. If placed at the warm end of the Intermediate house they grow and flower without trouble. The allied species require similar treatment.

CATTLEYAS.—C. Warscewiczii (gigas) will be in flower this month, and should have copious supplies of water until the flowers are off, when the supply must be gradually reduced till it can almost be done without. Many growers prefer to pot this Cattleya after flowering, but I think the operation is best left till springtime. It requires a severe rest, and when hopes of flowering it again next season be entertained it is impossible to give the required rest if disturbed at the root at this season. C. Gaskelliana is now rapidly making new growth, and some of the more advanced are already showing their flower sheaths. C. × Hardyana and its varieties, with C. × Fabia, C. × Mantinii and C. Bowringiana, are now growing freely, and should have the supply of water gradually increased. C. Trianæ is showing signs of starting, but should not be hurried, giving only sufficient water to keep the bulbs plump. There is also a host of Cattleya hybrids of various parentages, some in flower, some in sheath, and some commencing to grow. They are too numerous to enumerate, and must be left to the grower's own guidance, as some do better in one place than another, and owing to the intercrossing of different sections of the genus, it is only by personal observation that success in their culture can be assured. Keep the young growths free from scale, which can be removed with a moist sponge, but care should be taken when sponging so as not to bruise the young growths or leaves, or they may be permanently disfigured.

CŒLOGYNES.—C. Massangeana, C. Dayana, and C. tomentosa, hanging from the roof at the warm end of the Cattleya house, are now well rooted, and should have copious supplies of water until the new bulbs are fully made up, when the supply must gradually be reduced. C. pandurata is now well rooted, and should have the supply of water increased to meet requirements, being careful that none is allowed to lodge in the young growth, for if allowed to do so decay will quickly set in and the growth will be lost. In the Intermediate house C. cristata and its varieties will also be rooting freely, and should now be well supplied with water. A sharp watch should be kept for the small brown scale, which if once allowed to get a firm hold upon these plants is very difficult to get rid of. They should be

removed at once as soon as they are seen. They are very easy to sponge off when in a young state, but if allowed to attain the age of a few days it requires the aid of a brush or piece of stick to dislodge them, so firmly do they hold, and it takes treble the time to remove them.

CATASETUMS, with the allied genera Cycnoches and Mormodes, are now growing strongly in the warmest division, and copious supplies of water are now necessary for them to make good bulbs. When the new growth is about half made up, alternate waterings with weak liquid cow manure will be beneficial to them. Keep a sharp watch for the small yellow thrip, which is very harmful to the young leaves.

COMPARETTIAS.—At the warm end of the Intermediate house, C. coccinea, with its pretty yellowish red flowers, and C. falcata, with its dark crimson flowers, will soon be in flower, and should have copious supplies of water until the flowering season is past. At the cool end of the house C. macroplectron will be a little later, but requires the same treatment, which is similar to that given to Burlingtonias.

DISA.—Disa grandiflora, D. racemosa, D. × langleyensis and D. × Veitchii should be kept well syringed, and never be allowed to approach anything like dryness at the roots at this season. They should be kept in the coolest and shadiest place possible, and where free circulation of air can be given them, if anything like success in cultivating them is aimed at. Frequent fumigation with XL. All compound will keep the yellow thrip away, which is a frequent cause of ill health in this particular class of plant. Keep them clean and cool, and then you have a good chance of growing Disas, which are very difficult subjects to grow satisfactorily. They are among the showiest of Orchids when well grown.

EPICATTLEYAS.—The generic hybrids, Epicattleya matutina and E.-c. radiato-Bowringiana, should be grown in a temperature of 60° to 65°. They are now rooting freely, and should have a light position, with plenty of moisture around them. The compost should be kept moist, but not too wet. They are easy to manage, providing that they are not subjected to a sudden drop in the temperature, which will quickly cause spot to appear on the foliage, making the plants look unsightly, and also causing many leaves to drop off.

EULOPHIELLAS.—The handsome Eulophiella Elizabethæ will now be pushing its young growths, and if requiring repotting should be attended to. It will do well in Osmunda fibre and sphagnum moss, well mixed together, or in peat and sphagnum, half of each. Pot moderately firmly, and allow them plenty of room in the receptacle for two or three years' growth, for with judicious watering the compost will keep sweet, and they do better when not disturbed too often. After repotting, water carefully till they are well rooted. They should be placed at the warm end of the

Intermediate house during the summer months, and removed in the autumn to the Warm house for the winter. They should never be allowed to get quite dry at the roots at any season.

LÆLIAS.—Lælia purpurata will now have finished flowering, except perhaps a few belated ones, and as soon as the flowers are over the water supply should be somewhat reduced, and as soon as new roots are seen pushing from the base of the bulbs they should be repotted, using the compost as recommended for Cattleyas in a previous Calendar. L. pumila, præstans, and Dayana are now well rooted, and growing strongly in the Cool house. They should now have copious supplies of water until they have fully made up their new bulbs. They form a very pretty section, and deserve to be more widely cultivated than they are at present. Many say that they are too short-lived to trouble about, as it is a case of continually buying to keep it in a collection, but I think the cause of their not thriving in many places is because they are grown too warm. If grown cool they will increase in vigour, and live as long as any other Cattleya or Lælia.

DENDROBIUM GOLDIEI VAR. KARTHAUSIANUM.

SEVERAL very interesting Dendrobium flowers are sent from the establishment of Mr. C. F. Karthaus, Potsdam, Germany, by Mr. Blossfeld, and their history is thus given:—"Last year we received an importation of a few hundred Dendrobium superbiens, of which I am sending some flowers. Amongst them I found a few really fine D. Goldiei, and the best and darkest I called var. Karthausianum. I am sending three flowers, with some of the ordinary D. Goldiei and some good D. superbiens. These plants grow very well with us, in almost full sun, and under the same treatment as given to D. Phalænopsis. The spikes are also very graceful, and improve the appearance of all decorations in which they are used, also lasting as long as Cypripediums."

The variety sent is very handsome, and much more like D. bigibbum than D. superbiens in general character, but without the characteristic white crest of the former. The flowers have an expanse of 2¼ inches across the petals, which are obovate-orbicular in shape, somewhat recurved. and an inch broad. The lip is strongly three-lobed, with five obtuse keels on the disc, which are tall and strongly papillose in front. The whole flower is rich deep rose-purple in colour, with a trace of a narrow white margin to the sepals, as in D. superbiens. It is a marked improvement on the one sent as D. Goldiei, which probably represents Reichenbach's species of that name, and which has rather smaller flowers and narrower petals, but is very similar in colour and other details. D. superbiens has narrower, more twisted sepals and petals, and rather lighter colour, with a narrow white margin to the petals.

R. A. R.

DENDROBIUMS OF THE D. BIGIBBUM GROUP.

THE facts given in the preceding note raise once more the question of the origin of D. Goldiei, for when originally described by Reichenbach in 1878, as a new species, it was rather enigmatically suggested that there might be mules in the group. It may, therefore, be interesting to review the different forms in the order of their appearance.

D. BIGIBBUM was the original species of the group, and was described in 1852 (Lindl. in *Paxt. Fl. Gard.* iii. p. 25, fig. 245) from specimens introduced by Messrs. Loddiges, who flowered it in January of that year. The species really appeared much earlier, for, according to Reichenbach, it flowered at Kew as early as 1824, a beautiful drawing by F. Bauer, with this history, being preserved at the British Museum (*Gard. Chron.*, 1878, ii. p. 748). Loddiges' plant is said to have come from Mount Adolphus, near Torres Straits, but from additional records and dried specimens we learn that it also grows at Cape Granville and Cape York in Northern Queensland, on the Prince of Wales' Island and Thursday Island, in the Torres Straits, and also in New Guinea or islands adjacent thereto. It is well figured in the *Botanical Magazine* (t. 4898).

D. SUPERBIENS was described in 1876 (Rchb. f. in *Gard. Chron.*, 1876, ii. p. 516) as a very curious novelty, imported from Northern Australia by Messes. James Veitch & Sons, and allied to D. bigibbum. Messrs. Veitch describe it as a native of the York Pensinsula and some of the Islands of the Torres Straits. A year later Messrs. B. S. Williams obtained an importation from the Torres Straits, through their collector, Goldie (*Orch. Alb.*, vii. t. 312). The precise locality is not stated, but they remark that the species is also reported to have been found by Captain Broomfield on the Prince of Wales' Island, situated some twenty miles from the mainland of Queensland. Dr. Coppinger, of H.M. Ship *Alert*, collected it on West Island. It is probably identical with D. Sumneri (*F. Mucll. Fragm.*, vi. p. 94), described about eight years earlier, and still imperfectly known.

D. GOLDIEI was described two years later (Rchb. f. in *Gard. Chron.*, 1878, i. p. 652) from specimens imported by Messrs. B. S. Williams & Son through their collector, Goldie, after whom it was named. Reichenbach, though describing it as a new species, remarked that at first he thought it was a variety of D. superbiens, and suggested that there might be natural hybrids in the group. It came with D. superbiens, and is figured in *The Garden* (1878, ii. p. 244, t. 145), from the original plant.

D. PHALÆNOPSIS was described in 1880 (Fitzgerald in *Gard. Chron.*, 1880, ii. p. 38) from a plant which flowered in the collection of Captain Broomfield, of Balmain, and which had been obtained near Cooktown, in Queensland. It is figured in *Fitzgerald's Australian Orchids* (i. pt. 7, t. 5). A finer form of it was afterwards collected in Timor Laut by Mr. H. O.

Forbes, and was figured in the *Botanical Magazine* (t. 6817). Riedel also collected it there. It has since been imported in quantity from some neighbouring locality, and is now one of our most popular garden Orchids.

D. FITZGERALDI is a very curious plant. It was described by F. Mueller in 1884 (*Melbourne Leader*), Feb. 1884), being based on a plant figured by Fitzgerald as D. superbiens (*Austral. Orch.* ii. pt. 1, t. 5), but which is not Reichenbach's plant of that name. It is said to have been obtained from Northern Queensland, and flowered in the Greenhouse of the late Sir W. MacArthur. It has almost exactly the habit, drooping inflorescence, and undulate flowers of D. undulatum, but the petals are rather broader, and the colour is rose-purple. The plant appears to be a hybrid between D. undulatum and D. superbiens, and Fitzgerald himself remarks that its characters would almost lead to the supposition that it had arisen from hybridisation between D. undulatum and D. bigibbum, or some other of the lilac-flowered species found in Australia. It is still only known from the original unique specimen.

D. × LEEANUM was described in 1891 (O'Brien in *Gard. Chron.*, 1891, ii. pp. 640, 641, fig. 88), as a handsome new species imported with D. Phalænopsis var. Schrœderianum by Messrs. Sander. It was described as having pseudobulbs about three feet high, and sprays of flowers arranged after the manner of D. superbiens, but different in all points, more especially in the open form of the lip. It received an Award of Merit from the R.H.S. on November 10th, 1891. On seeing it I immediately suggested that it might be a natural hybrid between D. Phalænopsis and D. superbiens, as it was fairly intermediate in character. Soon afterwards two other plants appeared, in the collection of Sir Frederick Wigan, at East Sheen; and with Mr. H. V. W. Wade, of Singapore, the first of them, called var. atropurpureum, being darker in colour than the original. I then pointed out the unmistakable resemblance to both parents, and the intermediate character of the crest (*O.R.*, iii. p. 334). It remains excessively rare.

D. × STATTERIANUM.—In 1889 a plant was described and figured under the name of D. Phalænopsis var. Statterianum (*Reichenbachia*, ser. 2, i. p. 15, t. 7). It had appeared in the establishment of Messrs. Sander at St. Albans, in an importation of the typical form. The flowers were rather smaller and darker than in the type, and the lip was obtuse. Other plants subsequently appeared showing similar characters, and in 1893, noticing a distinct resemblance to D. bigibbum, I suggested that this form was a natural hybrid between D. bigibbum and D. Phalænopsis (*O.R.*, xi. p. 284). I have since discovered that D. bigibbum superbum represents a similar anomalous form, characterised by its rich purple colour, generally similar floral structure, and the absence of the characteristic white crest on the lip. It is said to have been introduced by John Gould Veitch, and received a

First-class Certificate from the R.H.S. in August, 1876. It was figured in the *Floral Magazine* (1876, t. 229), and afterwards described by Reichenbach (*Gard. Chron.*, 1878, ii. p. 748). It was also drawn by Mr. Day in September, 1877 (*Orch. Draw.*, xxii. t. 59), from a plant purchased from Mr. B. S. Williams out of Goldie's importations. Three months later, when figuring the typical form (*l.-c.* xxiii. t. 7), Mr. Day remarked: "I am inclined to think that the variety superbum is a distinct species. Independently of the great contrast in size, the labellum of that is much larger, the middle lobe particularly, and it has not the white callosity covered with white hairs which is so conspicuous in the old variety." The probability is that it is a natural hybrid. Specimens from Messrs. Sander are localised as islands off New Guinea.

It is now clear that there are three distinct species, D. bigibbum, D. superbiens, and D. Phalænopsis, which are natives of the islands of Torres Straits and the adjacent coasts of Queensland and New Guinea, where they grow more or less intermixed, while D. Phalænopsis also occurs in a somewhat outlying station in the island of Timor Laut. There are also three rare, more or less intermediate forms, now regarded as natural hybrids between the others, under the names of D. × Goldiei, D. × Leeanum, and D. × Statterianum. A fourth natural hybrid, D. × Fitzgeraldi, between D. superbiens and the very distinct D. undulatum, is still only known from the original plant. It would be interesting if someone would make the crosses indicated, with a view to clearing the matter up.

R. A. ROLFE.

LACÆNA BICOLOR ALBA.

AT the Meeting of the R.H.S., held on June 21st, an inflorescence of an Orchid called Lueddemannia Sanderiana alba was exhibited by Mr. F. W. Moore, M.A., Keeper of the Royal Botanic Garden, Glasnevin. It is a form of Lacæna bicolor, Lindl., without the usual purple markings on the lip, the flowers being of a nearly uniform yellowish white. Lueddemannia Sanderiana was described in 1897 (Kranzlin in *Gard. Chron.*, 1897, ii. p. 138) from specimens introduced by Messrs. Sander, it is said from the neighbourhood of Medellin, but its identity with Lacæna bicolor was soon afterwards pointed out (*O. R.*, vi. p. 199). The present one is presumably of the same origin, and has all the characters of the original except the purple markings. The flowers are numerous and are borne in a pendulous spike, the colour being yellowish white, and the disc of the three-lobed lip hairy. It is a striking thing, and like its allies, the Acinetas, and other genera of similar habit, should be grown in hanging baskets in the Cattleya house in the usual compost.

R. A. R.

THE HYBRIDIST.

ODONTONIA VUYLSTEKEI.—A very handsome hybrid, raised by M. Ch. Vuylsteke, of Loochristi, Ghent, from Miltonia vexillaria gigantea ♀ and Odontoglossum × amabile ♂, is figured in a recent issue of the *Tribune Horticole* (1910, p. 199, t. 204) under the name of Miltoglossum Vuylstekei, the name Odontonia, under which hybrids between the two genera are now known, being apparently overlooked. The plant has much of the Miltonia habit, and the spike at present bears two large flowers, though the number will evidently increase as the plant becomes stronger. The flowers are much like the Miltonia parent in shape, having elliptical-oblong sepals and petals, and a broadly-dilated, obscurely three-lobed lip, which is obcordately bilobed at the apex. The sepals and petals are rose-coloured, with numerous dark marblings, and the lip is closely marbled and almost reticulated with brown on a white ground, the disc being yellow. The markings on the lip show the influence of O. Harryanum introduced through the pollen parent.

BRASSOCATLÆLIA DIETRICHIANA.—A very handsome hybrid raised by M. Ch. Maron, Brunoy, France, from Cattleya × Vigeriana (a form of C. × Fabia) crossed with the pollen of Brassocattleya Leemanniæ, and one of the most richly-coloured Brassocatlælias known. The sepals are rose-coloured, the broad petals rather darker, and the fringed lip rich crimson with some golden veining in the throat. As both the parents are partly derived from Cattleya Dowiana, it might be expected that the influence of that beautiful species would be paramount, as is clearly the case, but the influence of Brassavola Digbyana is also apparent in the well-fringed lip, while Cattleya labiata is concerned in the rich colour. It received a Diploma d' Honneur at a recent meeting at Brussels. It is described and figured in the *Tribune Horticole* (1910, p. 199, t. 201, 202) under the name of Læliocattleya Dietrichiana.

LÆLIOCATTLEYA OBERON.—A charming hybrid raised in the collection of Lieut.-Col. Sir George L. Holford, Westonbirt, by Mr. Alexander, from Cattleya Mendelii crossed with the pollen of Lælia Jongheana, and unmistakably intermediate in character. The flower has much of the expanded character of the Lælia parent, but is considerably enlarged, measuring 7½ inches from tip to tip of the petals, which latter are over two inches broad and decidedly ovate in shape. The colour of the sepals and petals is rosy lilac, but Mr. Alexander remarks that it is now a little faded, the flowers having been out over a month. The lip is three inches long, very beautifully undulate, and light yellow in colour, flushed with lilac in front, while the throat is deep orange-yellow, with numerous slightly raised keels. The inflorescence sent bears three flowers. It bloomed for the first time in

June, 1909. The hybrids between Lælia Jongheana and the Cattleyas of the labiata group are still very few in number, but promise to be an exceptionally beautiful series.

ODONTONIA LAMBEAUIANA.—A striking hybrid raised by MM. Peeters & fils, Brussels, from Miltonia Warscewiczii and Odontoglossum × Lambeauianum. It is a small plant, three years old, now flowering for the first time, from the second bulb, the inflorescence carrying six flowers. It may be compared with the original Odontonia Lairesseæ (*O.R.*, xiii. p. 217, fig. 47), but has more elongated segments, and the marking arranged more in transverse bars, as in the Odontoglossum parent, while the markings on the lip are more broken up into spots. The flowers measure 2½ inches across, and the sepals and petals are oblong-lanceolate in shape, barred and spotted with reddish purple on a whitish ground, which is slightly tinged with rosy lilac. The lip is broadly quadrate, somewhat lobed at the apex, an inch long by over ¾-inch broad, regularly blotched with brownish purple except on the upper fourth, and the crest bright yellow. The column wings are short, rounded, and neatly crenulate. It promises to develop into a very handsome thing when the plant becomes strong.

ODONTIODA NEVENSE.—A brilliantly-coloured hybrid raised in the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, from Odontoglossum nevadense crossed with the pollen of Cochlioda Nœtzliana, was exhibited at the R.H.S. meeting held on June 21st last. Spikes from two plants have kindly been sent by Mr. Stevens, bearing nine and ten flowers respectively, and showing quite distinct shades of colour. The flowers are larger than those of the Cochlioda parent, the largest being two inches in expanse, and the shape of the sepals and petals is more lanceolate, as in the seed bearer. The lip is adnate to the column at the base, then free and gradually diverging, the limb being about as long as the sepals, and four-lobed, with the front lobes markedly crisped and denticulate. In one form the sepals and petals are almost uniformly deep reddish crimson, with an obscure trace of yellow at the base and apex, while the lip is orange-red, particularly on the side lobes. In the other the sepals and petals are distinctly lighter in colour, and may be described as orange-red, and about the same shade as the lip. The crest consists of four oblong, bright yellow calli, and the column is somewhat curved, half an inch long, and rose-purple at the apex, the wings being short, broad and truncate. It is a particularly bright and handsome hybrid.

LÆLIOCATTLEYA ALWYN.—A pretty little hybrid from the collection of A. Harrison, Esq., Lyndhurst, St. Andrew's, Watford, raised from Lælia pumila præstans × Cattleya × Fabia, and most like the former in general character. The flower is at present over four inches across, and has broad sepals and petals, the latter being ovate in shape, over 1½ inches across, and

rose-purple in colour. The lip is broad, the upper half deep crimson-purple, and the throat buff yellow. It may be described as fairly intermediate between L.-c. Clive and L.-c. Cornelia.

FERTILISATION OF ANGULOA.

AT page 192 of the June issue of the *Orchid Review* you remark that you cannot find any record of the fertilisation of Anguloa. In 1884, when at Sudbury House, Hammersmith, I carried out a host of crosses for the special pleasure and interest of the work. One was Anguloa Clowesii × Lycaste Skinneri. The capsule developed until it was quite twice as large as the flower, and Mr. Dominy, who had just been pensioned off by Messrs. Veitch, often said it "looked exactly like a large lemon." At last, after nine months' growth, and while still green, it opened, and, to our surprise, was quite empty. Anguloa virginalis × Lycaste cruenta did just the same thing. Anguloa Ruckeri × Lycaste costata did not develop like the others, but after the flower faded the pod began to damp off, as if it objected to L. costata, and Mr. Dominy concluded that the cross would always be too wide. Anguloa uniflora × Stanhopea tigrina would not take at all. Mr. Peacock regarded such crosses as nonsense, and, as I was averse to spoiling good flowers for nothing, I gave up all further attempts.

W. GOSTLING.

Horfield, Bristol.

[The remark about the fertilisation of Anguloa, to which attention is called, was a brief reply to a question respecting the structure of the flower and the use of the mobile lip. It did not occur to us that the absence of the words "in a wild state" would lead to misconstruction, or we should have inserted them. Mr. Gostling's letter, however, brings out some curious additional facts, for, of course, we were aware that hybrids of Anguloa have been raised. Curiously enough, a successful cross between Anguloa and Lycaste has been recorded (see *O.R.*, xvi. p. 92), under the name of Angulocaste Bievreana. On September 3rd, 1895, M. de Bievre, gardener to the late King of the Belgians, pollinated a flower of Anguloa Ruckeri with Lycaste Skinneri, and the capsule matured by the following May, when the seed was sown on the compost of the mother plant. In 1897 a few little seedlings were detected, one of which flowered for the first time in July, 1903. In June, 1906, a plant bearing thirteen flowers received a Certificate of Merit at Brussels. A painting was made, and a coloured plate published (*Trib. Hort.*, 1907, p. 516, t. 57). The plant is said to bear five or six flowers on a bulb, which are very fragrant, like those of the Anguloa parent. Prof. Cogniaux, in describing the plant, remarks that although M. de Bièvre has no doubt about the facts stated, he himself thinks that the flower must have been previously fertilised by the plants'

own pollen, or possibly by Anguloa Clowesii. This implies a doubt as to the presence of Lycaste, a doubt which we do not share, though we have suggested that Lycaste cruenta (not L. Skinneri) was the pollen parent, for the colour agrees closely, while the crest and markings of the lip are almost identical. A hybrid from L. Skinneri should have been very different in colour. The figure shows very clearly the influence of Lycaste, but we think that Auguloa Ruckeri and Lycaste cruenta were the parents. These records suggest the desirability of further experiments, apart from the fact that Angulocaste Bievreana is a very handsome plant. As to the insect which fertilises the flowers of Anguloas in a wild state, we should much like to have the observations of anyone who has seen the plants flowering in their native homes.—ED.]

ODONTOGLOSSUM × ANDERSONIANUM.

I HAVE several times expressed the wish that someone would raise a batch of seedlings between Odontoglossum crispum and gloriosum, to see how far they agree with the polymorphic natural hybrid O. × Andersonianum, and it would now appear that the cross has been successfully made. At the R.H.S. meeting held on April 19th last two seedling Odontoglossums were exhibited from the collection of A. Harrison, Esq., Lyndhurst, Watford, with the records "O. Pescatorei × Hallii" and "O. crispum × gloriosum." Both were evidently correct, and the latter was clearly a form of O. × Andersonianum. They had been purchased as seedlings with the record given, and Mr. Harrison kindly gave me a flower of the latter and undertook to obtain its history. He afterwards wrote that it was purchased as an unflowered seedling Odontoglossum from Mr. W. B. Kettle, a local nurseryman, in 1903, who had bought it amongst a dozen others, in 1901, from Mr. J. F. Ebner's collection, Woodlands, as seedlings raised by Mr. Ebner. The plant exhibited may be described as a typical O. × Andersonianum, with ivory white flowers of good shape, and bearing three or four dull purple spots on the lower half of the sepals, and a similar number in front of the crest of the lip, while the crest, basal markings and column wings are about typical. The petals are unspotted. It is particularly interesting to have the origin of this, the first natural hybrid Odontoglossum known, proved by direct experiment, and we should be glad to know if any other seedlings have been raised, as these might throw light on the remarkable polymorphism of O. × Andersonianum, a plant whose history has already been given in detail (*O.R.*, i. pp. 170-174). It has long been supposed that some of the forms that have been included under O. × Andersonianum are the result of re-crossing with the original species, and a batch of seedlings of known ancestry should be instructive.

R. A. ROLFE.

ORCHIDS AT KEW.

THE handsome Renanthera coccinea is rather an unmanageable plant in an ordinary Orchid house, on account of its tall and rambling habit, which necessitates a suitable position being provided. At Kew such a position has been found in the Mexican division of the Temperate house, where it is trained to one of the pillars at the south end. The plant has now become established, and this year has produced a fine panicle of its brilliant crimson flowers.

In the warm division of the Orchid house its dwarf but almost equally brilliant ally, R. Imschootiana, is now in bloom. In the same division are several well-bloomed Phalænopsis amabilis, with the rare Andaman Island P. tetraspis, Bulbophyllum barbigerum and the curious green, hairy-flowered B. inflatum, two plants of Aërides odoratum, and a lot of Paphiopedilums, including P. callosum Sanderæ, P. Victoria-Mariæ, P. Curtisii and its variety nobilior. The leaf of this variety is more like P. Dayanum than the old P. Curtisii, and it would be interesting to know its history, for we have seen the same form elsewhere. It is a very free bloomer, but the flowers are much like P. Curtisii in general character.

In the opposite Warm house are several well-bloomed plants of Dendrobium Phalænopsis, with D. Dearei, D. revolutum, and the bright rose-coloured D. regium, Vanda suavis with three good spikes of bloom, Brassavola Digbyana, Epidendrum Parkinsonianum, a good E. prismatocarpum, Catasetum atratum, Diacrium bicornutum, a well-flowered Eria longispica, the rare Platanthera Helleborine, and a plant of Oncidium altissimum with two very long inflorescences, making a fine display.

In the Cattleya house are several C. Warneri, and a plant of C. Mendelii on a raft with seven spikes, well-flowered plants of Oncidium Wentworthianum, sphacelatum and Harrisonianum, Stanhopea platyceras, a well-bloomed example of the graceful Maxillaria sanguinea, Sobralia Lucasiana, resembling a lilac-coloured S. macrantha, well-flowered plants of S. Wilsoniana and S. Amesiana, which look very much alike, Epidendrum trachychilum, and other interesting things.

In the Cool house are numerous Odontoglossums, including good examples of O. hastilabium, gloriosum, and luteopurpureum, a fine plant of Calanthe × Dominyi just beginning to flower, Aërides japonicum, Oncidium macranthum, Masdevallia Schlimii, M. Chimæra, well-flowered examples of M. muscosa, and various others.

Outside, on the rockwork, are Epipactis palustris and a very large clump of E. gigantea, Orchis latifolia with both green and spotted leaves, numerous plants of O. maculata, including the variety alba, and a clump of the handsome O. latifolia × maculata, believed to be a hybrid between

the two species, while in a shady dell near the ferns are several plants of the handsome Cypripedium Reginæ, which succeeds well here. Some of the Orchises are from self-sown seeds, the plants appearing here and there among dwarf things which prevent the surface from being disturbed.

ODONTOGLOSSUMS FROM STREATHAM.

SOME beautiful seedling Odontoglossums and Odontiodas are sent from the collection of R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black). Odontioda Cecilia (C. Nœtzliana × O. × Wiganianum) is a very richly-coloured hybrid, now flowering for the first time. The flower measures 1¾ inches across, and the sepals and petals are rich orange-red, while the lip is yellow, with a reddish margin, a large red blotch in front of the yellow crest, and numerous red markings on each side. It is described as a tiny plant, flowering on the first bulb, and with a thread-like spike, so that it gives no idea of what the size may be when the plant becomes strong. O. chelseiensis (C. vulcanica × O. crispum blotched) is a richly-coloured form of this pretty hybrid, the bright rose-purple colour being suffused through the greater part of the sepals and petals, while the side lobes of the lip are margined with brownish red, and there is a large blotch of the same colour in front of the crest. Odontoglossum × Clytie (Edwardii × Pescatorei) is represented by three flowers from three different plants, all different in the details of the colour and markings, and all very charming. They are heavily blotched with dark violet-purple on a lilac-coloured ground. O. × tigrinum (Harryanum × Fascinator) is a very large and handsome flower, measuring 3½ inches from tip to tip of the petals, the colour of the sepals and petals being clear yellow heavily blotched with brown, and the lip yellowish white, closely spotted with brown on the lower half. O. × Thwaitesii (Harryanum × ardentissimum) is a fine thing, with lilac ground colour, largely obliterated by large brown markings on the sepals, and purple markings on the petals, while the lip is white with a large violet-purple zone round the crest, and many elongated purple dots on the sides. The crest is deep yellow with many brown markings. O. × eximium (ardentissimum × crispum Boltoni) is a round flower with broad segments, very heavily blotched and suffused with rich red-purple, and the lip well blotched with red-brown. O. crispum chessingtonense, raised from a blotched crispum × c. Boltoni, has broad segments, with rosy ground colour, much red-purple blotching on the centre of the sepals and petals, and many red-brown blotches on the lip. All these were raised in the collection. The remaining flower is O. crispum plumosum in which the sepals are petal-like, all being broad, much crisped and white, with yellow crest-like markings on the inner halves of the lateral sepals, while on the lip occur two or three small cinnamon spots in front of the crest. **They form a very charming series.**

CYPRIPEDIUM × VENTRICOSUM.

ANOTHER stage in the history of Cypripedium ventricosum can now be recorded. At the Temple Show a hybrid Cypripedium obtained from C. macranthum and C. Calceolus was exhibited by Messrs. Wm. Cutbush & Sons, Highgate Nurseries, which I immediately recognised as a form of C. ventricosum. It was raised by Messrs. Cutbush's herbaceous foreman, Mr. E. Scaplehorn, who has kindly sent me the following particulars. In May, 1906, a flower of C. macranthum was fertilised with the pollen of C. Calceolus. The capsule developed and contained good seed, which was sown on a compost of sphagnum moss and leaf mould, rubbed up very finely in the hand. The compost was then carefully watered, and the pan was covered with a sheet of glass, and placed in a cold frame, being then kept continually moist. Some months later the seeds germinated, and four years after the cross was made the first flowers appeared, being exhibited as mentioned above. This experiment proves the opinion expressed six years ago (*O.R.*, xii. p. 185) that C. ventricosum, Swartz, is a natural hybrid between the two species mentioned, and identical with C. Calceolus × macranthus, Barbey, which appeared, together with plants of C. Calceolus, in an importation of C. macranthum from Siberia. Curiously enough, Mr. Scaplehorn did not know of this note, and only made the cross, with some others, in the hope of obtaining hybrids. He also remarks: "Although we have imported C. macranthum from Siberia in quantity I have never yet found C. Calceolus among them, although I am given to understand they grow in company." The flower exhibited quite agrees with the wild C. ventricosum in shape and colour, the dorsal sepal being ovate, acute, over 1½ inches long, and suffused with dark purple, which nearly obliterates the underlying yellow ground colour. The petals are similar in colour, narrow, hairy at the base, and as long as the dorsal sepal. The lip is globose, suffused and veined with dull purple in front and pale behind, and the staminode intermediate in shape. C. ventricosum has always been rare, but occasionally appears in importations of C. macranthum, and it is particularly interesting to have the origin of the plant finally cleared up.

R. A. ROLFE.

ODONTOGLOSSUM × ARDENTISSIMUM × LOOCHRISTIENSE.

A CURIOUS Odontoglossum is sent from the collection of G. Hamilton-Smith, Esq., Finchley, by Mr. Coningsby. It was bought a few years ago as a seedling from O. × ardentissimum × loochristiense, and Mr. Coningsby remarks that they did not expect to see a flower resembling a crispum from such a cross. Though most like O. crispum in shape and colour, there is a marked difference in the shape of the lip and column wings. The sepals

and petals recall an average O. crispum, but are rather more acute, and the colour is white, with a purple stain on the sepals, and one or more small purple blotches near the base. The petals are pure white, except in one case, where there is a single small purple spot. The lip is oblong, rather narrow, and purple, with a broad crisped white margin, somewhat recalling O. triumphans in shape, though the rounded side lobes with purple basal markings recall O. Pescatorei. The wings are rather broad, minutely denticulate, and with some brown markings, these again recalling the two species last mentioned. We think the record is correct, and hope the plant will be taken care of. It would be interesting to know where other seedlings from the same batch are, and what they are like. It is curious to reflect that a cross between O. crispum and O. excellens might yield a similar result. At all events, an analysis of parentage in each case would show O. crispum ½, O. Pescatorei and O. triumphans ¼ each.

ODONTOGLOSSUMS FROM WALTON GRANGE.

FLOWERS of a beautiful series of seedling Odontoglossums are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, who remarks that all were raised in the collection. First may be mentioned a fine hybrid from O. triumphans × luteopurpureum, which much resembles the former in general character. The sepals and petals, however, are more acuminate, and the lip is considerably enlarged and nearly circular. The colour is yellow, blotched with light brown, and with a large brown blotch on the lip. The column wings and crest also show some of the luteo-purpureum influence. Three seedlings of O. crispum × Vuylstekeæ are remarkably diverse. One is white with large red-brown blotches on the sepals and lip, but only a few small round spots on the petals. Another has a rose-purple ground with very large zone-like purple-red blotches on all the segments, while a third has a clear yellow ground colour, and dark brown markings. The two latter are of excellent shape, and the markings are closely similar except in colour. Two seedlings from O. triumphans × Adrianæ are also remarkably diverse. One is like a good bright yellow triumphans with shorter sepals and petals, on which occur numerous round brown spots, while the other is rather smaller, and has heavy dark brown Hunnewellianum-like blotches, and a crisped margin to the lip which recalls the same species. These are forms of O. × Babette. O. × Harryano-crispum Regina × Vuylstekeæ is a large and striking flower of a nearly uniform red-purple, but with obscure paler streaks representing the remains of a yellow ground colour, while the triumphans-like lip has a pale whitish margin. Two seedlings from O. Harryano-crispum × crispum Stevensii have white ground colour, regularly blotched with red-brown, and must be referred to O. × Lambeauianum, one being a very promising flower. O.

× Andersonianum × luteopurpureum is an improved form of one mentioned at page 125. It is much like the latter in shape and markings, but the ground colour of the lip is white, and that of the sepals and petals whitish yellow; quite a striking flower. A seedling of O. crispum has a zone of confluent red-purple blotches about the middle of the segments. Of two others the parentage is not given. One is most like an enlarged light yellow O. sceptrum of good shape, with heavily blotched sepals, a few small spots on the petals, and a zone-like blotch on the lip. The other is ivory white with large red-brown blotches on the sepals and lip, and a few small round spots on the petals. They form a beautiful series.

At a later date a good form of Odontioda Goodsonæ was sent, having very dark red-crimson sepals and petals, tipped and slightly margined with yellowish white, and the front of the lip of the latter colour. The inflorescense is compact, and bears nine flowers, with broad segments. The handsome new Odontioda nevense, received with it, is described on page 210.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent-square, Westminster, on June 11th, when there was a very fine display of Orchids. The awards for plants consisted of seven medals, one First-class Certificate, two Awards of Merit, and one Cultural Commendation, besides which a Gold Medal was awarded for a very fine collection of Orchid paintings.

Miss Maud Walters Anson, The Studio, Broadway, Streatham, exhibited a magnificent group of about 180 paintings of Orchids, showing the flowers in their natural size and colours, the majority representing plants that have been exhibited at the Society's meetings during the past year. The group occupied the long space at the end of the Hall, and made an imposing display, while the details of shape, colour, and marking were very faithfully rendered. The Society's Gold Medal was awarded. We noted fine drawings of the new Anguloa Cliftoni, Dendrobium acuminatum, &c.

W. D. James, Esq., West Dean Park, Chichester (gr. Mr. Smith), staged a good group of Vanda teres, the flowers being very fine and richly coloured. A Silver Flora Medal was awarded.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), received a Silver Flora Medal for a fine group, containing a series of well-grown Lælia purpurata varieties, ranging from the lightest to the darkest forms, L. × Ithone (× Latona × purpurata), smaller than the latter, but most resembling it in colour, three good plants of Læliocattleya Ballii, L.-c. Acis, a handsome L.-c. Schilleriana, &c.

M. Henri Graire, Amiens, received a First-class Certificate for Odontioda St. Fuscien var. Imperator (C. Nœtzliana × O. × Adrianæ), a very handsome hybrid, bearing a spike of fifteen large flowers, of a peculiar reddish shade, with some slender whitish markings on the sepals and petals.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received an Award of Merit for Miltonia vexillaria Snowflake, a large and beautiful white form, with a small, light yellow marking at the base of the lip. He also sent Læliocattleya Lustre superba (L.-c. callisto-glossa × C. Lueddemanniana), bearing a very fine spike of richly-coloured flowers, and a well-grown plant of L.-c. Krænzlinii (L.-c. elegans × C. Mossiæ). A Cultural Commendation was given to Mr. Alexander for Miltonia vexillaria Snowflake and M. v. virginalis, the plants being superbly grown and flowered. The latter form has the sepals and petals tinted with pink and the lip white.

De Barri Crawshay Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received an Award of Merit for Odontioda gattonensis rosefieldiensis (O. Kegeljani × C. Nœtzliana), a very handsome form suffused with scarlet on a yellow ground, and the lip cream white, tinged with red in front, and the crest yellow. He also sent two forms of Odontoglossum × harvengtense obtained from seed, one being like a large sparsely spotted O. crispum, the other yellow changing to cream colour.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting little group, including the first hybrid from Dendrobium regium, namely, D. × Alpha (euosmum var. Eleanor × regium), most like the latter in general character, but the flowers tinged with lilac. He also sent a plant of the rare Cryptochilus sanguineus, Masdevallia radiosa, and others.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent a handsomely blotched Odontoglossum crispum, raised by intercrossing O. c. Mundyanum and O. c. Chapmanii. The flowers were of good shape, and closely blotched with reddish purple on a white ground.

H. S. Leon, Esq., Bletchley Park, Bucks (gr. Mr. Cooper), sent a well-flowered Cattleya Mossiæ Wageneri, having white flowers with an orange-coloured disc to the lip.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), sent a fine group of Cypripediums, consisting chiefly of about two dozen C. callosum Sanderæ, bearing about sixty flowers, with three well-grown C. Lawrenceanum Hyeanum and the Bank House variety.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Mossiæ Grahame White, a large pink form, with a deep rose-coloured lip margined with blush white.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group,

to which a Silver-gilt Flora Medal was awarded. It contained a fine series of the handsome Læliocattleya Fascinator, some excellent Miltonia vexillaria, Cattleya Mossiæ Wageneri and others, Thunia Marshalliana, some good Epidendrum vitellinum, E. Wallisii, Odontioda Charlesworthii, examples of O. Bradshawiæ, several beautiful Oncidium pulchellum, a fine white Lælia purpurata alba with a faint tinge of lilac on the front of the lip, Odontoglossum crispum, O. luteopurpureum Vuylstekeanum, some good hybrids, &c., and the new Miltonioda Ajax (M. Schrœderiana × C. Nœtzliana), a striking thing, with deep reddish crimson sepals and petals, and a four-lobed buff-yellow lip, with a brownish suffusion in the centre.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, received a Silver Flora Medal for a fine group, including some good Miltonia vexillaria, rose and white forms of Cattleya Mossiæ, some good C. Mendelii, Lælia purpurata and tenebrosa, Læliocattleyas, a good Cœlogyne Dayana, Odontoglossum Pescatorei, luteopurpureum, and others, a fine plant of Bulbophyllum Lobbii with over a dozen blooms, Oncidium Gardneri, Cymbidium Schrœderianum, Dendrobium suavissimum, and Masdevallia calura, with various Cypripediums, Oncidiums, Epidendrums, &c.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including a varied series of Læliocattleya Canhamiana and Fascinator, Phalænopsis amabilis, Maxillaria Sanderiana, some good Brassocattleya Veitchii, Phaius × oakwoodiensis, various fine Odontoglossums, Dendrobium regium, chrysocrepis and atroviolaceum, Cattleya × Dusseldorfii Undine, Vanda teres, Anguloa Clowesii, Oncidium Gardneri, pumilum and crispum, Epidendrum atropurpureum and raniferum, Aërides Houlletianum, Cymbidium Lowianum concolor, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a group of about two dozen well-grown and flowered Cattleya Warscewiczii.

Messrs. J. & A. A. McBean, Cooksbridge, also received a Silver Banksian Medal for a good group, including some fine Miltonia vexillaria, some good Odontoglossum crispum, O. c. Magnum Bonum II., being a finely shaped form with a few dark spots on the petals, a very fine O. × harvengtense, and other good things.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, sent Cattleya Mendelii Dixonæ, a pretty blush pink form.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a small choice group, including white and spotted forms of Odontoglossum crispum, a good O. luteopurpureum Vuylstekeanum, Odontioda Goodsonæ, Cypripedium callosum Sanderæ, and C. × Maudiæ magnificum.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a few good blotched hybrid Odontoglossums and a brightly-coloured Odontioda.

Messrs. Stanley & Co., Southgate, sent a few good coloured and white forms of Cattleya Mossiæ.

Mr. H. A. Tracy, Twickenham, sent Cattleya Mossiæ delicata, C. M. colorata and C. M. Fairlawn, the latter a pretty white form tinged with lavender, and with some slate blue veining on the lip.

Messrs. James Veitch & Sons, Chelsea, sent Anguloa × dubia superba (Clowesii × uniflora superba), an interesting hybrid having honey-yellow flowers, densely spotted with light rosy red.

At the meeting held on June 21st there was a rather small display of Orchids, and the awards consisted of two medals, three Cultural Commendations, and one Award of Merit.

The President, Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a Cultural Commendation for a very vigorous plant of Odontoglossum × Vuylstekei with two sturdy spikes, each bearing ten fine flowers, heavily blotched with purple brown on a yellowish ground. He also sent the beautiful Odontioda heatonensis var. St. Vincent, bearing four graceful spikes, with good plants of Octomeria diaphana and Physosiphon Loddigesii.

Lt.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received a Cultural Commendation for a fine plant of Lælia tenebrosa Walton Grange var., bearing a spike of four flowers, having canary yellow sepals and petals, and a white lip with purple suffusion and veining in the throat.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), received a Cultural Commendation for Cattleya Warscewiczii gigantea, a very vigorous plant, bearing a spike of six remarkably fine flowers, the lip measuring as much as 2½ inches across.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received an Award of Merit for Odontioda Vuylstekeæ, Walton Grange var., a fine and very richly-coloured variety, the greater part of the flower being deep scarlet, with a few whitish markings on the sepals and petals, and the crest of the lip yellow. Several other plants from the same cross were also shown, with examples of Odontioda nevense (C. Nœtzliana × Odontoglossum nevadense), having light scarlet flowers, Odontoglossum × amabile Graireanum, having the markings on the flowers orange-brown, O. × eximium Centenary, O. crispum xanthotes, and O. × armainvillierense xanthotes, with a spike of 12 good flowers.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent Dendrobium Dearei, Cobb's var., a particularly good form of the species.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), sent Odontoglossum crispum, The Hon. Marguerite Joicey, a fine

variety of the Starlight type, having large flowers, tinted with pink and dotted with purple on the petals.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the rare and striking Dendrobium Williamsianum, bearing two spikes of white flowers with a violet-purple lip, Odontoglossum × armainvillierense, bearing a spike of beautiful white flowers with yellow blotches on the lip, Pescatorea Dayana, Warscewiczella Wailesiana, and Læliocattleya Radiance.

F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, sent a fine inflorescence of Lueddemannia Sanderiana alba, which is a form of Lacæna bicolor without the usual spotting on the lip.

W. H. St. Quintin, Esq., Scampston Hall, Rillington, Yorks (gr. Mr. Puddle), sent Lælio-cattleya × Wilfred (L. × cinnabrosa × C. Aclandiæ), with reddish orange sepals and petals and a purple lip, and Cattleya Gaskelliana, Scampston Hall var., a pretty white form with a lilac tinge on the lip.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Mossiæ Michael, a very richly-coloured form, C. M. Banshee, a pretty white form of the Wageneri type, and Læliocattleya Mrs. W. Hopkins (L. × Iona × L.-c. Haroldiana), with very dark purple sepals and petals and an intense blackish crimson lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, to which a Silver Flora Medal was awarded. It contained a number of fine Læliocattleya Canhamiana, Fascinator and Aphrodite, a good Miltonia × Hyeana, M. vexillaria Cobbiana, Cattleya Mossiæ Arnoldiana, a fine Odontioda Charlesworthii, O. Corneyana (C. Nœtzliana × O. × Lambeauianum), of a nearly uniform crimson shade, but not so dark as the preceding, O. heatonensis, Bulbophyllum virescens, with an inflorescence of nine flowers, Zygocolax Charlesworthii, Odontoglossum citrosmum, a fine O. × armainvillierense xanthotes, O. apterum, Cypripedium bellatulum Queen of Spain, Cirrhæa saccata with three racemes, Dendrochilum latifolium, an interesting Promenæa with very broad leaves and very dwarf scapes, and other good things.

Messrs. Stuart Low & Co., Bush Hill Park, also received a Silver Flora Medal for a fine group, including Acineta Humboldtii with two racemes, a fine Cœlogyne Dayana, Oncidium Lanceanum, O. Wentworthianum, O. pulchellum, O. monachicum, Dendrobium nobile virginale, D. gloneratum and secundum, some well-grown Odontoglossum Pescatorei, Cochlioda Nœtzliana, Vanda parviflora, Bulbophyllum tremulum, claptonense and Lobbii, Læliocattleya Martinetti and others, Bifrenaria Hadwenii, Promenæa xanthina, Chysis × Sedenii, Cattleya Mossiæ Wageneri and Reineckeana, C. Mendelii, Lycaste aromatica, some good examples of Cypripedium niveum, C. Rothschildianum, and other good things.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, sent Lælia × Ithone (Latona × purpurata), with buff sepals and petals and a purple lip, and a form of Odontoglossum crispum.

Messrs. J. & A. A. McBean, Cooksbridge, sent a few handsome things, prominent among them being Cattleya Mossiæ Wageneri, C. M. Rosita, with rosy-lilac sepals and petals, and a very undulate lip, also a good blush white form of C. Mendelii.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a good white form of Miltonia vexillaria, the bright yellow Odontoglossum × Wiganianum, a dark form of O. × Lambeauianum, and two other handsomely blotched forms.

Mr. H. A. Tracy, Twickenham, sent a good Odontoglossum × Eleanor (cirrhosum × Uroskinneri), Læliocattleya eximia magnifica, and Cattleya Mendelii cœrulescens, having the lip purple-blue in front.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THE last meeting of the Society's year was held at the Coal Exchange, Manchester, on June 2nd, when the results of the various cup competitions were decided, as follows :—

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), was awarded Messrs. Charlesworth's Cup, for plants not previously certificated by the Society.

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), won Messrs. Sander's Cup for Cypripediums.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), was the winner of Messrs. Stuart Low's Cup for Cattleyas and the various allied genera, with their hybrids.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), was awarded Mr. Robson's Cup for Odontoglossums.

All these Cups were offered for the highest number of points gained by the competitors throughout the year, the competition being limited to Amateurs, with a prize of five guineas to the winning gardener.

N. Galloway, Esq., Bradford, was the winner of the Ward Cup, for Amateurs who grow Orchids without the aid of a gardener.

There was a fine display of Orchids at the meeting in question, but we regret that we are not able to give particulars, as Mr. Thorp, who has kindly sent reports for the last three years, is not able to continue them, at all events for the present, and the expected report has not arrived in time. There was also a meeting on June 23rd.

An interesting programme is being prepared for the coming year, but we understand that it is not yet printed. We hope to be able to give particulars next month.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held during July. The first is the great Summer Show to be held at Holland House, Kensington, on Tuesday and Wednesday, July 5th and 6th, when the Orchid Committee will meet at 10.30 a.m., on the first day. The second meeting will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 19th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The succeeding meeting is fixed for August 2nd, the day after Bank Holiday.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on July 21st. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock, p.m.

An illustration of the Odontoglossum house at Craghead, Bothwell, N.B., is given in a recent issuse of *The Garden* (p. 264).

We note with pleasure that the name of Lt.-Col. G. L. Holford is included in the King's Birthday Honours list, he having been promoted to the rank of Knight Commander of the Royal Victorian Order.

ORCHIS MONOPHYLLA.

THIS very distinct and interesting Orchis is flowering with Messrs. Sander & Sons, at St. Albans, plants having been received through their collector Micholitz from the Southern Shan States. Plants are also flowering at Kew. It grows from six inches to a foot high, and produces a single basal leaf, two to three inches broad, and a spike of numerous lilac-coloured flowers, with purple spots on the lip. The leaf is broadly ovate, subacute, and closely blotched with blackish purple spots on a light greyish green ground. They are convolute round the stem when young, but ultimately spread close to the ground, the dark spotting giving them a striking appearance. The species appeared in cultivation in 1898, when its history was given (*O. R.*, vi. p. 144). Previously it had been known as Habenaria monophylla, but plants which had been introduced by Messrs. James Veitch & Sons then flowered at Kew, and showed that the glands of the pollinia were enclosed in a pouch, as in Orchis. Soon afterwards it was figured in the *Botanical Magazine* (t. 7601). It was originally discovered by General Collett in 1888, in the Shan Hills, at 4,000 feet elevation. It also occurs in Yunnan, having been collected at Mengtse, growing on grassy uplands and among rocks at 6,000 to 7,000 feet elevation, both by Dr. A. Henry and by W. Hancock. When growing in quantity under such conditions it must

form a very handsome object. A light position in a Cool or Intermediate house should suit it when growing, with the soil kept slightly moist when at rest. It is during the latter period that these terrestrial deciduous Orchids are the most difficult to manage. R. A. R.

ORCHID PORTRAITS.

CATTLEYA × DUSSELDORFII UNDINE, WESTONBIRT VAR.—*Journ. Hort.*, 1910, i. p. 483, with fig.

CATTLEYA LAWRENCEANA VAR. MARY-REGINA.—*Journ. Hort.*, 1910, i. p. 355, with fig.; *Gard. Mag.*, 1910, p. 431, with fig.

CIRRHOPETALUM BIFLORUM, J. J. SM.—*Bot. Mag.*, t. 8321.

CYMBIDIUM × EBURNEO-LOWIANUM.—*Gard. Chron.*, 1910, i. pp. 406-407, fig. 185.

CYPRIPEDIUM PUBESCENS.—*Gard. Chron.*, 1910, i. p. 369, fig. 163.

CYPRIPEDIUM SPECTABILE.—*Gard. Chron.*, 1910, i. p. 370, fig 164.

ERIA RHYNCOSTYLOIDES.—*Gard. Chron.*, 1910, i. p. 378, fig. 167.

MILTONIA × BLEUANA, HESSLE VAR.—*Garden*, 1910, i. p. 277, with fig.

MILTONIA × BLEUANA NOBILIOR.—*Trib. Hort.*, 1910, pp. 99, 103, with fig.

MILTONIA VEXILLARIA VAR. SNOWFLAKE.—*Journ. Hort.*, 1910, i. p. 531, with fig.

ODONTIODA KING GEORGE V.—*Journ. Hort.*, 1910, i. p. 507, with fig.

ODONTIODA ST. FUSCIEN VAR. IMPERATOR.—*Gard. Mag.*, 1910, p. 457, with fig.

ODONTOGLOSSUM × MEMORIA KING EDWARD VII.—*Gard. Mag.*, 1910, p. 427, with fig.

ODONTOGLOSSUM × ROSSIANÆ VAR. RUBENS.—*Garden*, 1910, i. pp. 238, 239, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

F. A. P.—The "disease" on the Cypripedium leaves is caused by yellow thrips, whose active presence was immediately detected by the aid of a lens. Fumigate with one of the tobacco preparations, and sponge the leaves as often as necessary till all the insects are destroyed. The rust will remain as a disfigurement to the old leaves, but the young ones may be saved if the insects are destroyed.

F. C. P.—Thanks for the note; we were able to correct the record.

G. F. M.—The white Bee Orchis is rare. A note on the subject is unavoidably postponed.

H. G.—Apparently a light-coloured form of Dendrobium hercoglossum, Rchb. f. A note on the subject is held over.

H. G. A.—Cymbidium lancifolium.

E.F.C.—Next month.

Photographs received, with thanks—A.P. (next month), L. & H.

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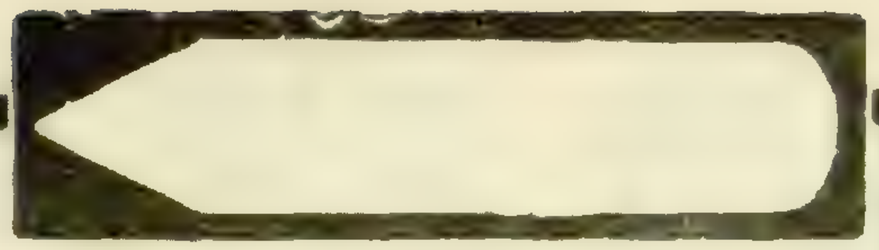

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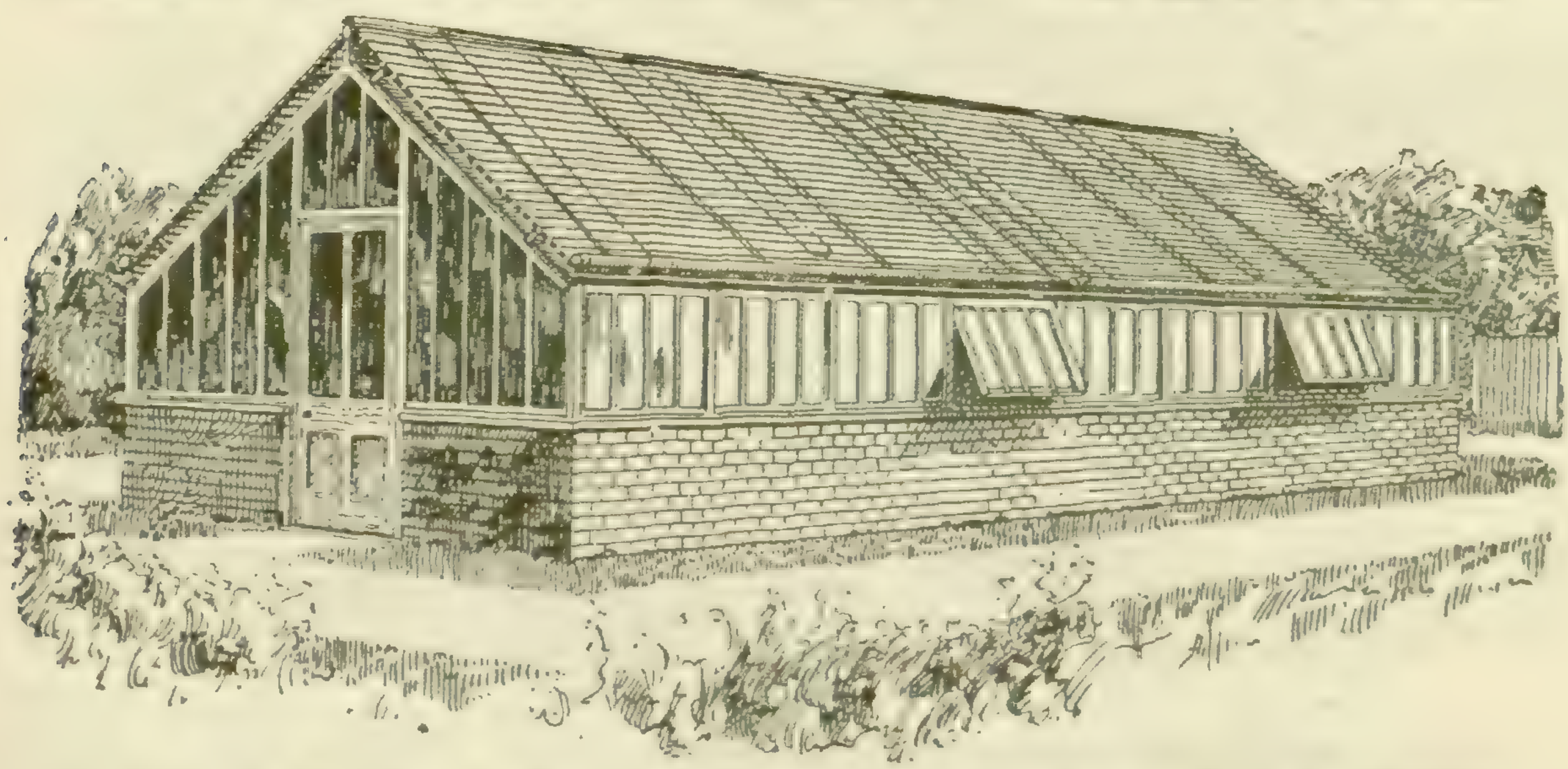

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VOL. XVIII.] AUGUST, 1910. [No. 212.

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *AUGUST*, 1910. [No. 212.

A CYPRIPEDIUM HOUSE.

(*Concluded from page* 198.)

I HAVE now about 130 plants: 70 are Cypripedes, of which I have 30 species, 1 natural and 2 artificial hybrids, and 1 Phragmopedilum × Sedenii. The house is run to suit the warm growing Cypripedes and the cooler Cypripedes do not appear to suffer much. I forgot to mention that the felt covers are of the greatest service in maintaining a moist atmosphere in the house at night without frequent damping of the floor. I also omitted to say that the day temperatures given apply to the warmest part of the house on a sunny day.

THE C. BELLATULUM SECTION.—The plants I have, when bought in 1906, consisted of nine very small pieces and single growths. At that time, though most of the leaves were healthy, none exceeded 3½in. by 1in., and the average was smaller. The plants were starved. These plants now fill one six and four five inch pots to overflowing, and have leaves up to 9in. by 2¼in., the average full-grown leaf being about 7in. by 1¾in. In my experience bellatulum is one of the most rapid and free growing of all Cypripedes. They are potted much after the methods advocated by the late Mr. R. Young, *O. R.*, iv. 45, the late General Berkeley, *O. R.*, v. 236, and Mr. O. O. Wrigley, *O. R.*, vii. 146. Others have mentioned the same or somewhat similar methods, but I believe that the gentlemen named were the pioneers of what may truly be called the commonsense plan of potting this section.

In potting C. bellatulum I like a rather deep pot, for pots under 6in. I generally use "long thumbs." In a 6in. pot I place lumps of old mortar, the larger the better, to a depth of about 1½in. (this may be increased), securing the drainage with a thin layer of fibrous loam. I then build up in the centre a pile of lumps of mortar and a little loam, finishing the pile with a large lump of mortar for the base of the plant to rest on. The roots are allowed to hang down round the central pile, and the pot is filled with alternate layers of lumps of mortar, of ½in. to 1½in. diameter, and loam, the latter being mixed with 2 to 3 oz. of mortar crushed to sand size. I prefer a sandy clay loam, but I have used good fibrous loam or a mixture of these

with good results. I pot rather firmly, but do not allow the loam to be squeezed into dense lumps. The mortar is soaked for a day or two in water before use. I make the surface of the compost about ½in. below the rim and allow it to rise a little in the centre. The plants should be so arranged that the point from which new roots may be expected to spring is at, or very little below, the surface. The compost (excluding drainage) should consist of about one half lumps of mortar and one half loam. Moss, whether in or on the surface of the compost, is bad for the plants. Chalk may be substituted for the mortar, but I believe the latter is better. Mortar or chalk is most easily broken into suitable lumps with a stout bradawl or stiletto.

Cypripedium concolor, C. concolor Sanderæ, C. Godefroyæ and C. niveum grow very well with a slight modification of the above method. I bought some imported C. concolor in 1907. They consisted of several small weak growths, the largest leaves not exceeding 2in. in length and some small leafless fragments of rhizome. All have grown, and are in fine condition; one flowered in 1908, and others, including one grown from a bit of rhizome, have flowered since. For these species I use smaller and deeper pots in proportion to the size of the plant than for bellatulum. More than ¾ of the potting material consists of lumps of mortar. The remaining ¼, used only for filling in the spaces between the lumps of mortar and for lightly surfacing, is a mixture of loam 2 parts, Belgian leaf mould or chopped oak leaves 1 part, and crushed mortar 1 part; or Belgian leaf mould may be used instead of the loam.

The only trouble I have had with any of this section is the loss of leaves and, in one or two cases, whole growths, by rot at the bases of the leaves. I believe that this rot is probably due to water lodging in a growth and running down between leaves, the bases of which are closely folded round each other, not to any condition, such as watering, affecting the whole pot, as other growths and bellatulum seedlings in the same pot are quite unaffected. By cutting away all affected parts with a sharp knife, applying powdered chalk, and giving less water, the rot seems to have been stopped in some cases. I believe that placing the plants in a current of air at the temperature of the house would do much to cure the trouble, and would probably be a good preventive measure too. C. bellatulum seedlings very rarely, if ever, suffer from rot, probably because they are less crowded and get more air than the older plants.

All the plants of this section flower well; C. bellatulum generally flowers twice a year, and frequently produces two flowers on one scape. On two occasions I had to remove large buds produced from the base of seed pods of five or six months old. This species makes large pods of seed freely without any apparent strain on the plant.

Watering this section of Cypripedes is not difficult if the plants are properly potted. The only plant I ever had difficulty in watering was a C. concolor which I bought potted in peat, loam and moss. At that time I had less experience, and was afraid to repot such a "delicate" plant. When potted properly the plant soon ceased to be delicate, and I may say here that I am doubtful whether there is such a thing as a really "difficult" or "delicate" Cypripedium. Our difficulties are generally of our own making, and so long as we apply unnatural potting materials and conditions to Cypripedes so long will there be "difficult" and "bad doers" among them. If we correctly reproduce in our houses the conditions under which such plants grow naturally, they will, I believe, grow easily and well. A similar remark was made by the Editor of the *O. R.*, vol. iii. p. 247. It is a pity that we get so few detailed accounts from collectors and others of *all* the conditions affecting the Orchids they find growing wild.

I judge the need for watering C. bellatulum by the condition of the compost and the leaves of the plant. If the compost is dry and the leaves are soft, and their upper surfaces wrinkle when the leaf is gently bent upwards, I give the plant water. The plants all stand in saucers, and as a rule I water until there is from ½in. to 1in. of water in the saucer. The plant is allowed to stand thus for 20-30 minutes, the water not absorbed is then poured off and the plant is replaced in its saucer. Testing by bending the leaves must be done with discrimination. Some leaves are not reliable guides, and leaves should be chosen which re-act definitely to water. If possible the *test* is best done on a dull day or after sunset. I keep the plants a little drier in winter, when they are not making so much growth, than in summer. My plants generally require water every third to fifth day in summer. They do best on the south side of the house, where they get some sunlight. Cypripedium concolor, C. Godfroyæ and C. niveum are tested for watering on the same system as C. bellatulum.

To avoid the risk of letting water lodge in the growths, I water most of these by immersing the pot in water to about ¾ of its depth for 5 or 10 minutes. I have watered these plants on this system for two years, and the plants like it. Newly-potted plants of this section, especially those with poor roots, must be watered more cautiously.

C. Charlesworthii grows well with me. In potting it I use mortar drainage to about ⅓ of the pot's depth, and the compost consists of light loam, 3 parts, polypodium fibre, 2 parts, and about ½ a part each of crushed mortar and chopped oak leaves. Equal quantities of this mixture and lumps of mortar are packed round the roots, and the base of the plant rests on an extra large piece of mortar. The late Mr. R. Moore, in his excellent and most helpful paper on "Orchids of the Shan States" (*O. R.*, iii. 170), describes C. Charlesworthii as growing on limestone rocks. The pots

stand in saucers, and, after watering, I let them soak like C. bellatulum for about 20 minutes.

More than 2 years ago I had a 4in. pot containing four growths of C. Curtisii which had then been at a standstill for a year. I repotted, using a 6in. pot with about 2in. of mortar drainage, in a compost of loam and polypodium fibre, 3 parts each, leaves, lumps of crock and sand 1 part each. A good many lumps of mortar were worked in with the compost, and one large lump placed centrally and near the surface, separated the growths. The plant is now in splendid condition, and has fourteen blooms. For about eighteen months past this pot has stood in a saucer, and I usually water the surface of the compost until the saucer is nearly full, and the plant stands in the saucer until it has used up the water (about 5oz.), usually in three or four days time, when it is again watered or a little water is poured into the saucer instead.

Whenever it is possible I pot Cypripedes in a close imitation of the material in which the plant is found growing naturally. Unfortunately there is a lack of information as to the materials in which many grow. The Cypripedes for which I do not know the natural treatment I divide provisionally, and for horticultural purposes only, into Rock growers and Epiphytes, with possibly another class. A liking for limestone seems to run through the whole group; the bellatulum section, Charlesworthii, Spicerianum (probably), Sanderianum (possibly), Phragmopedilum caudatum, and Cypripedium Calceolus, the only British representative of the group, are all found on limestone. There is limestone in Burma, and I am told that there is limestone over a considerable portion of the Himalayas up to 4,000 feet. I believe that limestone occurs in many parts of the Malay Peninsula and on Mount Kina Balu in Borneo. I learn, too, from one who has been in Bhutan, the home of C. Fairrieanum, that there are many limestone mountains and hills in that country. My informant observed no gneiss (*cf. O.R.*, xiii. 301). In all these places Cypripedes are found, and I believe, therefore, that limestone or mortar may be used with some hope of success for many Cypripedes of which the natural rooting medium is unknown.

Probably many of the Rock-growing Cypripedes root in clefts or cracks of the rock, with but little natural compost round the roots. We shall best imitate these conditions by a free use of lumps of mortar or limestone in the compost, and liberal drainage of the same material to a depth of $\frac{1}{4}$ to $\frac{1}{2}$ that of the pot. The softer part of the compost may consist of chalk marl, loam, or some fibrous material, such as peat, polypodium or Osmunda fibre with some loam or leaf mould or both. Mortar is a good material for drainage, &c., as it takes up a large amount of water in a short time, and seems to part with this absorbed water rather slowly, thus keeping the air in the drainage and compost moist to some extent.

I find, on averaging a number of measurements, that pots of Cypripedes, potted on ordinary lines, contain a surprisingly large amount of air. For example, an empty 5in. pot contains 35 fl. oz. of air; such a pot filled in the ordinary manner with drainage, compost and plant contains, in addition, 11 to 12 fl. oz. of air. The volume of air in the drainage is approximately equal to the actual volume of drainage material used, *i.e.*, about half the space occupied by the drainage in the pot is filled by air, not counting air in the pores of the drainage material. In a 5in. pot drained 1½in. deep the air spaces in the drainage amount to about 5 fl. oz. Thus air is a more important constituent, by bulk at least, of pot contents than might be supposed. As these measurements were made by displacing the contained air by water, it is certain that when partly dry the potting materials must contain an even larger amount of air. I believe that this air is necessary in order to imitate natural conditions, but, under ordinary potting conditions, the air in the drainage can, if the plant is not watered very frequently, only contain about the same percentage of water as the air of the house. As a rule if the Hygrometer shows 2°-3° of difference, with occasional variations to, say, 5°, the atmosphere is damp enough for the leaves, but I believe that the longer and older roots require a saturated or nearly saturated atmosphere, and that, under natural conditions, the rock-growing Cypripedes send many roots down into clefts, &c., until they find this saturated atmosphere.

I have often, when repotting plants in fair condition, observed injurious or poor growth in roots after they had entered *the drainage*, and it seems not improbable that these injuries are due to too dry an atmosphere in the drainage checking the growth of the roots which had entered it. Cypripedium roots can extend to a considerable length; I have had bellatulum roots 2ft. long. I think it probable that under natural conditions the base of the plant and the shorter and younger roots are generally surrounded by materials which dry readily, and are not constantly wet, while the longer and older roots are further down in crevices in saturated or nearly saturated air. Under ordinary potting and Orchid house treatment I think that these conditions are generally reversed, the base of the plant and younger roots being in a moister medium than the older roots which have reached the drainage. Having these considerations in mind, I tried placing some pots, containing plants, in saucers, and allowing the base of the pot and *part* of the drainage to soak therein for, say, 20 to 30 minutes after watering, when the unabsorbed water was poured away and the pot replaced in the saucer. The pot being thus closed at the bottom, the thoroughly moist drainage produces the saturated atmosphere required by those roots that have reached the drainage.

To produce dryer conditions *in the compost*, especially near the surface, I

occasionally omit watering in the ordinary way, and in lieu thereof pour a little water into the saucer, taking care that there is no more water than the plant is sure to use up in two days or less, and particularly that the water does not rise as high as the compost. I do not suggest that roots require to be continuously immersed in water, still, under this treatment a few are likely to be under water at times, but in my experience roots in contact with *drainage only* do not suffer. In pots watered by this method it is good to change the air at times. This may be done by removing the saucer when watering, or the pot may be placed in water to the rim until the contained air is driven out.

I have tried this treatment on a great variety of Cypripedes for some time past; most of them have benefited and none have been harmed.

To carry out the idea of keeping the compost on the dry side while the drainage is constantly full of moist air, I have kept a pot of C. niveum in a saucer containing water for 6 weeks, giving no water at all to the compost. During this test the plant has improved in appearance, and has produced a scape bearing two good flowers. In order to save trouble the saucers may have a hole drilled in the side at a chosen point, or special saucers may be used having low rims, say, ¼in. to ½in. high.

I have not yet found any method of potting epiphytal Cypripedes that quite satisfies me.

Plants that do well in my house are Cypripedium exul, which blooms regularly, one plant giving five blooms this spring, C. Rothschildianum, C. Parishii, which has bloomed three times, once giving a scape of seven blooms, Aërides odoratum, Saccolabium curvifolium and Phaius bicolor. The latter grows well and increases in size, but has only bloomed once in 4 years.

I have failed with many plants, but the failures have been due either to neglect of some elementary necessity or to causes which I could not discover.

I find that Aluminium wire is good for hanging light pans, &c., as it does not harm any roots that come in contact with it, and it keeps clean. It is of lower tensile strength than most wires, and should be used in rather stout guages.

MILES JOHNSTON.

[The foregoing interesting article, which might have been entitled "An Amateur's Cypripedium House," was communicated by Dr. Miles Johnston, High Lea, Bideford, N. Devon, to whom we tender the best thanks of our amateur readers for such a detailed account of his experiences. Dr. Johnston afterwards sent a photograph of the fine plant of C. Curtisii, mentioned on page 228. We hope to illustrate it next month. We wish some amateur would favour us with a similar article on the Odontoglossum House.—ED.]

ANGULOA × DUBIA SUPERBA.

AT the R.H.S. meeting held on June 11th last an interesting hybrid Anguloa was exhibited by Messrs. James Veitch and Sons, under the name of A. × dubia superba, its parentage being recorded as A. Clowesii × uniflora superba. The flower recalled Mr. Seden's earlier A. × intermedia (Clowesii × Ruckeri), being honey yellow, densely spotted with light rosy red. The cross should have proved the parentage of A. × dubia, Rchb. f. (*Gard. Chron.*, 1882, i. p. 764), which appeared in a Colombian importation made by Mr. B. S. Williams, and was figured by Mr. Day from the type plant (*Orch. Draw.*, xlii. t. 67), but the flower does not agree at all. The parentage of the plant exhibited was, we understand, taken from the record book kept by Mr. Seden, but he also made the cross A. Clowesii × Ruckeri, and as the two seedlings are so much alike it seems probable that both came from the same cross, and that the one last mentioned. There is every reason to believe that the suggested parentage of A. × dubia is correct, except that we must substitute A. virginalis for A. uniflora now that it is discovered that the Colombian plant so long known as A. uniflora is not the original Peruvian species of that name (See *O.R.*, xvii. p. 316). A. × dubia has flowers most like A. virginalis in shape, but the colour lemon yellow, covered on the inside of the sepals and petals with minute purple dots, and the lip white with purple blotches inside at the base. A. × intermedia was afterwards referred to the earlier A. × media, Rchb. f., raised by Mr. Bowring from A. Clowesii and A. Ruckeri, and, curiously enough, it afterwards appeared as a natural hybrid in the collection of R. H. Measures, Esq. (See *O.R.*, i. p. 40). It would appear that A. × dubia superba must be considered as another form of the same. R. A. R.

BARON SCHRÖDER'S WILL.—The will has been proved of Baron Sir John Henry William Schröder, head of the firm of Messrs. J. Henry Schröder and Co., bankers of Leadenhall-street, E.C. The estate has been sworn for probate as of the gross value of £2,079,611 9s. 4d, of which the net personality has been sworn at £1,970,927 16s. 2d. Among the bequests are, £1,000 to the Royal Gardeners' Benevolent Institution; and £500 to the Royal Gardeners' Orphan Fund, £1,000 to his gardener, Henry Ballantine, and £3,000 for distribution by his executors in their discretion amongst all of his servants in his employ at his decease; to his gardener, Henry Ballantine (in addition to the bequest of £1,000) one original Orchid, to be chosen by him, and all the smaller plants which have been taken from it; to his Orchid foreman-gardener one original Orchid, to be chosen by him after Henry Ballantine has made his choice, and also all smaller plants which have been taken from it.

CATTLEYA WARSCEWICZII ALBA.

THE annexed figure represents a very beautiful albino Cattleya which, under the name of Cattleya gigas alba, was awarded a Gold Medal at the Horticultural Show held at Boston, Mass., U.S.A., on March 26th last. It is reproduced from a photograph sent by the exhibitors, Messrs. Lager and Hurrell, Summit, New Jersey, who remark that the plant was "imported in a batch of the species last summer, and that the flowers are absolutely pure white, with a suffusion of greenish yellow in the throat of the lip." Albinos of Cattleya Warscewiczii are very rare, if indeed a true one has previously

Fig. 14. CATTLEYA WARSCEWICZII ALBA.

appeared. The variety rochellensis is nearly but not quite an albino, as will be seen by the following note. It was recorded by Reichenbach in 1888, under the name of "C. labiata Warscewiczii rochellensis, n. var., or, shorter, C. rochellensis" (*Gard. Chron.*, 1888, ii. p. 533), the plant having flowered with Messrs. Siebrecht and Wadley, of New York. The author described it as snow white, with an exceedingly light, evanescent purplish hue on the front of the lip. It passed into the collection of the late Mr. F. L. Ames, and was figured in *Reichenbachia* (ser. 1, ii. p. 81, t. 85), and although we do not detect any trace of purple in the figure, the presence of a tinge of

this colour on the front lobe of the lip is mentioned in the text. We have not seen a living flower, and do not know where the plant is now. Among varieties with white sepals and petals but a coloured lip may be mentioned, the varieties franconvillensis (*O. R.*, i. p. 268), Wigan's var. (*O. R.*, ix. p. 349), White Queen (*O. R.*, xi. p. 266), Frau Otto Beyrodt (*O. R.*, xii. p. 245), and Our Queen (*O. R.*, xiii. p. 246), while the variety Mrs. E. Ashworth (*O. R.*, v. p. 255) has blush white flowers with a tinge of yellow on the disc of the lip and a small lilac blotch in front. At last we appear to have a true albino, which is a great acquisition. It will take a long time to propagate a stock of it by division, but why not try to raise a batch of self-fertilized seedlings? Experience teaches us that albinos usually come true from seed.

CALENDAR OF OPERATIONS FOR AUGUST.

By W. C. PRICE, Oakdene, West Didsbury.

GENERAL REMARKS.—A sufficient quantity of polypodium fibre should be prepared, ready for mixing when wanted for potting the Odontoglossums at the end of this month. All boilers and hot-water pipes and fittings should be thoroughly overhauled this month, and if any repairs are needed, the order should be given at once to the firm chosen, as the Horticultural hot-water fitters are, as a rule, very busy at this time of year, and unless the order is given in good time you may have to wait until the cold nights are here before the work is done. Whether repairs are needed or not it is advisable to empty the boiler and flush it out, as there is bound to be an accumulation of sediment. Give all flues and chimneys a thorough cleaning, so that a clean start can be made for the autumn and winter. During the season, when the boilers are much used, the flues should be cleaned out every week, as by having a clear draught you can keep a steadier heat, thereby saving fuel. We find that good sectional boilers are the best kind to use. They are easy to clean and very economical, as you can get the heat up very quickly and lower it as quickly when required. There is also the advantage of being able to see all round them, as they do not require to be covered in with brickwork. The houses should also be overhauled, and all cracked and broken glass renewed. Any rafters or woodwork that are decayed should be taken out and replaced with new. If any of the houses require re-painting they should be done now, so that everything is nice and cosy for the winter.

The general growing conditions should continue as advised last month. Every effort should be made to induce the plants to make free and vigorous growths and bulbs, for without these no Orchid is ever seen at its best when in flower. To attain this end it is necessary to give strict attention to the ventilation, shading, heat, and moisture, also to cleanliness from insects.

Not one of them should be overlooked. It is necessary to call attention to these matters again, knowing how important to the successful culture of Orchids they are, and I have seen so many plants simply starved at this season by lack of attention to these matters.

CALANTHES.—C. × Veitchii, vestita, Regnieri, and others of that section, are now growing vigorously, and require abundance of water at the roots, but at the same time care must be taken not to give too much, or the unsightly spot will occur. Where the pots have become full of roots alternate waterings with weak liquid cow manure and soot water will be very beneficial to them. The best way to use it is to put about one bushel of cow manure and one peck of soot into a bag, tie the neck of the bag, and place in a small tank or barrel, and let it soak two or three days before using. By doing this you get no sediment to clog the surface of the soil. When watering mix half a pint, or a 3½ inch potful, to each gallon of clean water, which is quite strong enough to commence with, but can be increased in strength by one-third in a few weeks time.

CATTLEYAS.—The growths of C. labiata are now well advanced, and give promise of a fine show of flowers later on. A good batch of this beautiful autumn-flowering Cattleya should be grown in every collection, especially where quantities of cut flowers are required. They now require copious supplies of water, which should be continued until the flowers are off. C. Harrisoniana, bicolor, amethystoglossa, velutina, Leopoldi and granulosa are now well advanced, and those that were repotted have rooted and got quite at home again. They now require their full supply of water, and should never be allowed to get quite dry at any season. Cattleya and allied seedlings that require a larger pot should be attended to as soon as they are fit, no matter what the season of the year, and the operation should be carefully done so that no check is given to them.

CYPRIPEDIUMS.—Most of the Cypripediums that were potted early in the year ought to be now well rooted and growing very actively. Every attention should be given to them, so that they do not suffer from lack of water in any respect, as it is very necessary to a successful climax of the season's growth that they do not suffer any hindrance to their development. Any back growths that were taken off, and have not yet started, or any weakly plants, should be placed together at the warmest end of the house, where they can have a corner to themselves, and special attention given them. A change of position is often beneficial to a plant that is not doing well. They are like ourselves; if we are run down we go for a change of air, and find that we are all the better for it. Cypripedium seedlings should be kept on the move, and not allowed to get pot-bound. It has been a good season for these, and there ought to be some grand varieties shown during the coming season from those that have reached the flowering stage. Seed

also has germinated well this season, and raisers will soon be busy pricking off.

CYMBIDIUMS.—C. Lowianum, eburneum and eburneo-Lowianum will now be ready for repotting, using the compost and method as recommended in the February Calendar. Plants of C. Tracyanum that were potted earlier in the year will now be well rooted, and should have copious supplies of water, but one must be sure that they are well rooted before giving much. The grower must use judgment, and pick out those that are not well rooted, for if these are saturated the few roots they may possess will rot and the plant deteriorate.

LÆLIA ANCEPS will now be well rooted and growing strongly, and should have copious supplies of water at the roots, and also be frequently syringed overhead. The old bulbs that were taken off when potting, and placed together in pans, will now be ready for potting up in the usual way.

MILTONIAS.—M. × Bluntii and its handsome variety Lubbersiana should be grown at the warm end of the Intermediate house, and will now have their bulbs half made up, and should be given copious supplies of water. M. Warscewiczii, growing with them, will now be ready for repotting, if requiring it this season. Use the compost recommended in the June Calendar, and carefully water until well rooted again.

ODONTOGLOSSUMS of the crispum section will now be over for the season, as far as the bulk of them is concerned, but where they are grown in quantity there are always a few in flower or spike, and they are always useful. Keep them as cool as possible, without having a harsh atmosphere in the house, and see that the house is well damped. The lower ventilators can be left open all night now, according to the conditions prevailing outside; in fact, all departments are the better if the lower ventilators are left open a little during the night when the weather is warm enough, as it helps to make the growth more sturdy, and you do not find a stuffy feeling in the morning if this is judiciously attended to.

ONCIDIUMS.—O. bicallosum will now be ready for repotting, but any plant that has got good sweet compost and room enough to make another season's growth should not be disturbed. Those requiring repotting should be given pots large enough to last them two years, and be potted in a compost consisting of one-third each of Osmunda and polypodium fibres and sphagnum moss, well mixed together. Pot moderately firmly, and water carefully till well rooted. A light position in the Intermediate house suits them well. O. Cebolleta requires similar treatment, but should be grown in the Cattleya house, suspended either in pans or upon rafts. O. varicosum Rogersii and O. × Mantinii, in the Cool house, have now nearly completed their growths, and some of the more advanced are already throwing up their flower spikes. Abundance of water should be given them

until the flowering season is over. O. Forbesii requires similar treatment, but is not so far advanced, as its flowering season follows after the varicosum section.

Another useful Oncidium for autumn and winter flowering is O. tigrinum, with its fine branched spikes of yellow and chestnut brown flowers. It lasts weeks in perfection, and is very useful for decorative purposes. It should be grown at the cool end of the Intermediate house. O. incurvum, with its pretty white and purple flowers and graceful spikes, is another autumn-flowering plant that should be in every collection. The spikes are now coming up freely, but patience is required in waiting for them to open, for they take a long time from the appearance of the spikes until the flowers expand. O. pulvinatum must be divided into two sections, the winter-flowering and the summer-flowering. The summer-flowering type should have the supply of water reduced as soon as the flowers are off until the young growths are well away, but should not be allowed to get dust dry, otherwise the treatment recommended for O. bicallosum will suit them, except that they should be grown at the warm end of the house. The winter-flowering type is now growing strongly, and requires copious supplies of water.

PERISTERIA ELATA will now be throwing up flower-spikes, and requires abundance of water. Alternate waterings with liquid cow manure until the spikes are off will be very beneficial, but should be given very weak, or the flowers will become a dirty white instead of being a clear waxy white. The flowers are also much clearer and last longer if the plants are shaded whilst in flower.

SOBRALIAS will now have finished flowering, and any requiring repotting may now be attended to. A good compost for them consists of one-third each of good fibrous loam, broken up roughly, peat, and sphagnum moss. Pot moderately firmly and water carefully until they are well rooted. If an increase of stock is desired, they are easily divided with a sharp knife, leaving four or five reeds to form a plant. Pot them in the usual way, and they will soon send up young growths. Care should be taken when potting not to break more roots than can be helped, as they are very brittle.

SOPHRONITIS grandiflora and its varieties coccinea, purpurea, and rosea are now ready for repotting, if requiring new material. We find that they do well in a compost consisting of one-third each of Osmunda and polypodium fibres and sphagnum moss, well mixed together. Pot moderately firmly in shallow pans, and suspend from the roof of the Cool house. Water carefully till well rooted. Unless the compost is decayed, or the centre of the plant bare, they are best left alone, as they do not like to be disturbed too often. When repotting, room enough to last them three or four years should be given, but do not allow too much, as they grow very compactly and do not spread very rapidly.

THE GENUS SARCOPODIUM.

THE Orchids now included in Dendrobium section Sarcopodium form a very distinct group, and objection has several times been taken to their inclusion in Dendrobium, on account of their very distinct habit and the different appearance of the flowers. Reichenbach included them in Bulbophyllum (*Walp. Ann.*, vi. p. 244), but this position is equally unsatisfactory Dr. Lindley's view was that they constitute a distinct genus, to which he gave the name of Sarcopodium, in 1850 (*Paxt. Fl. Gard.*, i. p. 154). He remarked: "Between Dendrobes and Bulbophyls there exists a race having the large flowers of the former and the peculiar habit of the latter, and hence referred to the one or the other genus according to the fancy of the observer. They agree with Dendrobes in having four pollen masses and a hornless column, but they have coriaceous, not thin half-transparent flowers, and a tough leathery lip, enlarged, not contracted at the base. If they had a caudicle and gland to their pollen masses they would be Asiatic Maxillarias. They form neither horn nor spur, but are simply inflated and expanded at the base of the sepals. On the other hand, although they grow like Bulbophyls, yet they have no horns to their column, but two pollen masses, and their large leathery flowers afford a further difference. To these plants, consisting of the Dendrobium amplum, of Wallich, and the Bulbophyllum Lobbii, affine, leopardinum, Cheiri and macranthum of Lindley, the name Sarcopodium may be applied." The second of these was figured, under the name of Sarcopodium Lobbii (fig. 98).

Soon afterwards, in the *Folia Orchidacea*, Lindley published a fuller account of the genus, in which he included sixteen species, dividing them into two sections, the first having a concave, trilamellate lip, and containing four species, the latter a canaliculate, unappendaged lip, and twelve species. The two sections are really very distinct, and in the *Genera Plantarum* the the first is referred to Dendrobium, as section Sarcopodium, and the second to Bulbophyllum, as section Sestochilos. The former I have long thought could be better considered as a distinct genus, to which the name Sarcopodium can be properly applied, although it contains only the first of the six species originally enumerated by Lindley. It cannot be applied to the second section, for S. Lobbii, of which a figure was given, had long previously been figured and described by Breda, under the name of Sestochilos uniflorum (*Gen. et Sp. Orch. Jav.* t. 3), a fact overlooked by Lindley when describing Sarcopodium.

The genus, as thus limited, has a more or less elongated, woody rhizome, with ovoid or somewhat tetragonal pseudobulbs, bearing two, oblong, coriaceous leaves at the apex, and a terminal inflorescence of one to several flowers. The sepals and petals are oblong or acuminate; the lip three-lobed,

and more or less mobile; and the column produced at the base into an elongated foot, to which the lateral sepals are united, forming an obtuse or rounded mentum. In habit it is more like Bulbophyllum than Dendrobium.

It may be interesting to give a brief account of the species, with their distribution, and a reference to published figures. They are as follows:—

1. SARCOPODIUM AMPLUM, Lindl.—A North Indian species, ranging from Nepal to East Assam and the Khasia Hills. It occurs in Sikkim at elevations of 4,000 to 6,000 feet. The flowers are large and solitary, the sepals and petals green dotted with brown, and the front of the lip purple-brown. It was cultivated by Messrs. Loddiges about 1845, but is now seldom seen. It is figured in *King & Pantl. Orch. Sikkim*, p. 63, t. 89.

2. S. FUSCESCENS, Lindl.—A native of Sikkim and the Khasia Hills, occurring in the former at elevations of 5,000 to 7,000 feet. The flowers are about half as large as in the preceding species, and light green, with the front lobe of the lip brown. It is probably not in cultivation.—*King & Pantl. Orch. Sikkim*, p. 62, t. 88.

3. S. ROTUNDATUM, Lindl., occurs in Sikkim at elevations of 6,000 to 7,000 feet, and also in the Naga Hills. It is allied to the preceding species, and has chestnut-brown flowers. It bloomed in the collection of the late Major-Gen. Berkeley, in March, 1895.—*King & Pantl. Orch. Sikkim*, p. 62, t. 87.

4. S. CŒLOGYNE (Dendrobium Cœlogyne, Rchb. f.) is a native of Moulmein, where it was discovered by Parish at 4,000 to 5,000 feet elevation, and introduced to cultivation, flowering in the collection of Mr. J. Day, at Tottenham, in 1871. It is closely allied to S. amplum, and has very similar large flowers, but rather darker in colour. It is figured in *Cogn. Dict. Ic. Orch.* Dendrob. t. 32.

5. S. MACROPODUM (Dendrobium macropodum, Hook. f.) was discovered in Perak, by Scortechini, at about 5,000 feet altitude, and was described from dried specimens. The scapes are over six inches long and several-flowered.—Figured in *Hook. Ic. Plant.* t. 2020.

6. S. LONGIPES (Dendrobium longipes, Hook. f.) is another of Scortechini's Perak plants which is not yet known in cultivation. The scapes are about six inches long, and 3-5-flowered.—*Hook. Ic. Plant.* t. 2017.

7. S. GEMINATUM (Desmotrichum geminatum, Blume) was originally based upon a Javan plant collected by Lobb, but has since been found by Scortechini, in Perak, at 3,000 to 4,000 feet elevation. The racemes are short, and bear several yellow flowers. It is not in cultivation.

8. S. CYMBIDIOIDES (Desmotrichum cymbidioides, Blume) is a native of the mountains of Java, and was introduced to cultivation by Messrs. Rollisson, of Tooting, over half a century ago. It bears racemes of bright

yellow flowers, with some purple markings on the base of the lip. It is figured in *Bot. Mag.*, t. 4755, as Dendrobium cymbidioides, Lindl.

9. S. TRIFLORUM (Desmotrichum triflorum, Blume) is a Javan species which has been in cultivation for over twenty years, though for a long time it was confused with the preceding (See *O.R.*, xii. p. 69). It has racemes of several flowers, with straw-coloured sepals and petals, and the sides of the lip dull purple. It has twice been figured under the name of Dendrobium cymbidioides, *Gard. Chron.*, 1896, i. p. 581, fig. 90, and *Cogn. Dict. Ic. Orch.*, Dendrob. t. 17.

10. S. ELONGATUM (Desmotrichum elongatum, Blume), a third Javan species, appeared in cultivation a few years ago. Both it and the preceding are united with Dendrobium cymbidioides by J. J. Smith, but it has a larger raceme and very much smaller flowers. It received a Botanical Certificate from the R.H.S. in December, 1908 (*O. R.*, xvii. p. 22).

11. S. TRIADENIUM, Lindl., is an imperfectly known Javan species, which was collected by Jonghuhn, and was described from dried specimens. It is most allied to S. triflorum.

12. S. LABUANUM (Dendrobium labuanum, Lindl.) is a Bornean species collected by Lobb, in 1853, and described from dried specimens. It has climbing stems, very small pseudobulbs, and the racemes are shorter than in S. geminatum.

13. S. KINABALUENSE (Dendrobium kinabaluense, Ridl.) was discovered on Mt. Kinabalu, Borneo, at 7,000 feet altitude, by Haviland. It also has a climbing habit, but the leaves and flowers are much larger than in the preceding.

14. S. TREACHERIANUM (Dendrobium Treacherianum, Rchb. f.) is a Bornean species, which was introduced by Messrs. Hugh Low & Co., Clapton, with whom it bloomed in July, 1881. It has light purple flowers. —*Bot. Mag.*, t. 6591.

15. S. SULPHURATUM (Dendrobium sulphuratum, Ridl.) is also a native of Borneo, nearly allied to the preceding, but having sulphur yellow flowers, with the front lobe of the lip reddish brown.

16. S. RADICOSUM (Dendrobium radicosum, Ridl.) is a Bornean species, having pale yellow flowers, with a rosy tinge, and some red-brown spots on the lip.

17. S. VERRUCIFERUM (Dendrobium verruciferum, J. J. Sm.) is a sixth Bornean species, said to be allied to S. macropodum. It flowered at the Buitenzorg Botanic Garden quite recently.

18. S. ACUMINATUM (Dendrobium acuminatum, Rolfe) is a Philippine species, collected on Mt. Mariveles, in the province of Bataan, and described from dried specimens. It has long pendulous racemes, with acuminate sepals and petals, which are said to be white, streaked with lavender, and

the disc of the lip yellow. It is figured in *Ames Orch.*, ii. t. 17, as Dendrobium acuminatum.

19. S. LYONII (Dendrobium Lyonii, Ames) is allied to the preceding, but has larger rosy-carmine flowers with a darker lip. It was found in the mountains of Bataan, Luzon, at 2,000 to 3,000 feet elevation. It has been confused with the preceding, and I believe includes all the plants which have been recently exhibited under the name of D. acuminatum, also the figures in *Gard. Chron.*, 1907, ii. p. 210, fig. 88; 1909, ii. p. 150, fig. 64: *Gard. Mag.*, 1909, pp. 659, 660, with fig.: *Journ. Hort.*, 1902, ii. p. 291, with fig.; *Orchis*, ii. p. 73, t. 16.

20. S. STELLA-SILVÆ, Loher & Kränzl. (*Fedde Rep. Nov. Sp.*, vii. p. 40), was collected in the Philippines by Loher, and recently flowered at Erlangen. It is most like S. acuminatum, and has white flowers, with some purple stripes on the lip and a yellow crest.

21. S. MURICATUM (Dendrobium muricatum, Finet) is a remarkable New Caledonian species which recently flowered at the Royal Botanic Garden, Glasnevin, whose history has already been given (*O. R.*, xvii. p. 347).

R. A. ROLFE.

CATASETUM THYLACIOCHILUM.

A FINE plant of this rare Catasetum, bearing two pendulous racemes, was exhibited at the recent Holland House Show from the collection of J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), under the name of C. Russellianum. The two species are remarkably alike in habit and colour, but there is a striking structural difference between them, to be pointed out presently. C. thylaciochilum was described in 1856, by Lemaire (*Ill. Hort.*, iii. Misc. p. 90, with fig.), from a plant which flowered in the establishment of M. Verschaffalt, at Ghent, and which had been received from Mexico in the previous year. It was said to be allied to C. calceolatum, Lem. (*Ill. Hort.*, i. Misc. p. 45, with fig.), a Guatemalan species which has since proved identical with C. Russellianum, Hook. *Bot. Mag.*, t. 3777. In August, 1889, a Mexican Catasetum was sent to Kew for determination by Messrs. John Cowan & Co., Liverpool, which had been shipped from Vera Cruz, and which proved to be C. thylaciochilum. Four years later the late Mr. W. H. Gower also sent it, and in August, 1895, it flowered with Sir Trevor Lawrence. Although resembling the Guatemalan C. Russellianum so closely in habit and colour, it is markedly different in the structure of the lip, which in C. thylaciochilum forms a globose basal sac, prolonged far behind the base of the lateral sepals, while in C. Russellianum the sac extends forward, forming an elongated pouch, which ends abruptly beyond the middle of the lip. Both the species belong to the section Ecirrhosæ (Rolfe in *Journ. Linn. Soc.*, xxvii., p. 224) characterised by the absence of the antennæ-like appendages of the column. R. A. ROLFE.

CATTLEYA MOSSIÆ.

A PHOTOGRAPH of a fine specimen of Cattleya Mossiæ, from the collection of Albert Pam, Esq., Little Hallingbury, Essex (gr. Mr. Wm. Smith), which has just flowered in the collection, reminds us that this beautiful species has not yet been figured in our pages. This plant was brought over from Venezuela in the summer of last year by Mr. Pam, who remarks that "it

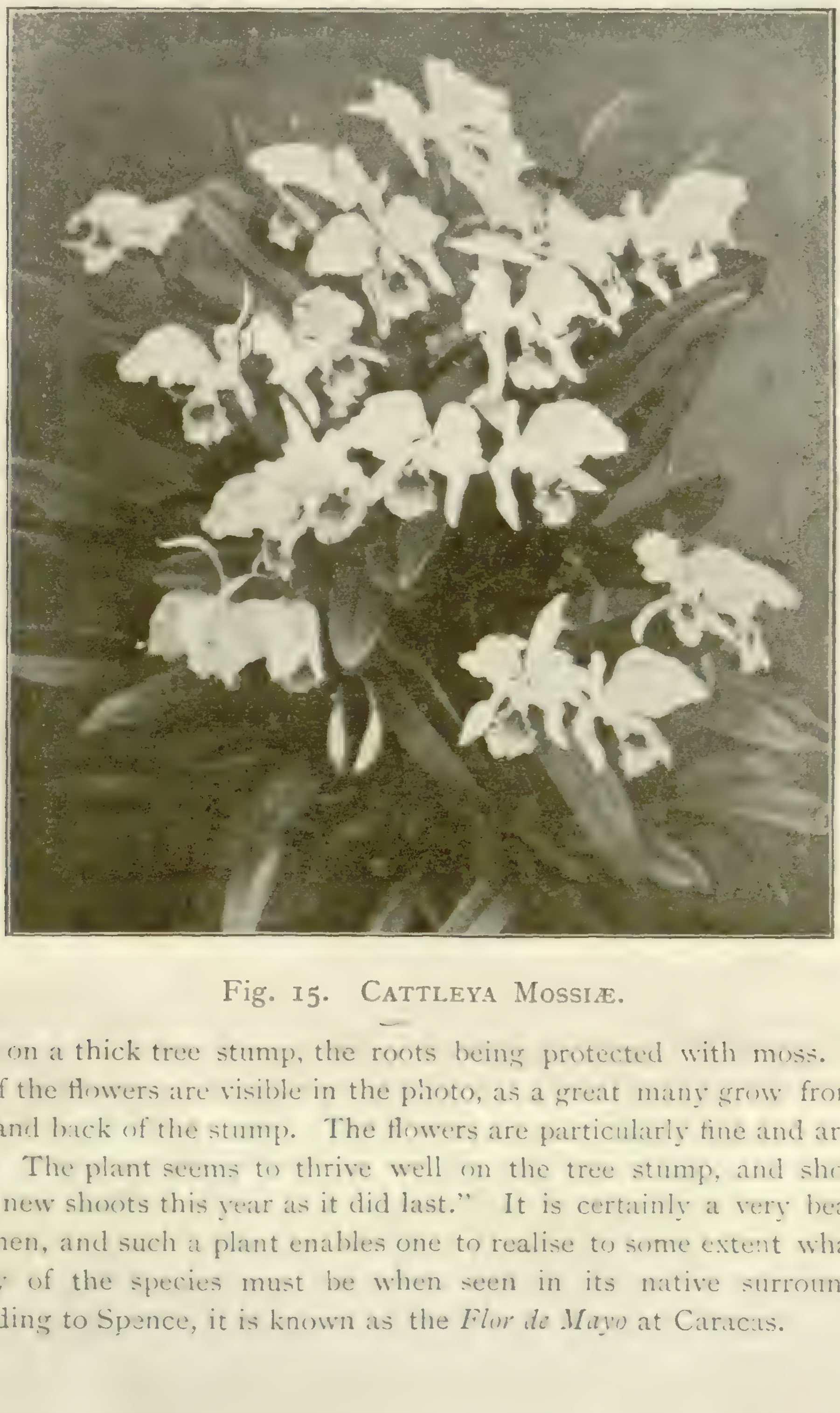

Fig. 15. CATTLEYA MOSSIÆ.

grows on a thick tree stump, the roots being protected with moss. Only part of the flowers are visible in the photo, as a great many grow from the sides and back of the stump. The flowers are particularly fine and are very large. The plant seems to thrive well on the tree stump, and shows as many new shoots this year as it did last." It is certainly a very beautiful specimen, and such a plant enables one to realise to some extent what the beauty of the species must be when seen in its native surroundings. According to Spence, it is known as the *Flor de Mayo* at Caracas.

Cattleya Mossiæ has been known for nearly three-quarters of a century, having been received from La Guayra, in Venezuela, by Mr. George Green, of Liverpool, in September, 1836. Soon afterwards it was imported by Mr. Parker, of the Hornsey Nurseries, and others. It flowered for the first time in this country in the collection of Mrs. Moss, Otterspool, near Liverpool, and was figured and described in the *Botanical Magazine*, in 1839 (t. 3669), by Sir William Hooker, who dedicated it to Mrs. Moss. Lindley shortly afterwards made it a variety of C. labiata, and as such it was considered for many years, but of late its claim to rank as a distinct species has again been recognised. It is still one of the best known and most popular Cattleyas in cultivation. "Its native home," Messrs. Veitch remark (*Man. Orch.* ii. p. 23), "is on that portion of the mountain range extending along the north of Venezuela, near the coast, that lies between Porto Cabello and Cape Codera, and where, judging from the large and frequent importations received in this country for many years past, it must be very abundant. It is one of the most variable of Cattleyas as regards the coloration of the labellum, so much so that scarcely any two plants produce flowers with lips alike, though all show the characteristic markings which chiefly distinguish this from every other Cattleya of the labiata group:—thus we find, in some subvarieties, the rich purple of the anterior lobe predominates and gives its tone to nearly the whole visible surface of the lip; in others, it is the orange-yellow of the disc that spreads over the greater portion of the throat and anterior lobe; in others again, the rich purple colouring is reduced to a few divergent streaks, and its place is taken by a delicate rosy mauve not infrequently bordered with white. These forms are connected by others in which every imaginable shade of the predominant colours occur, passing from one into the other by gradations so gentle as to render futile any attempt to designate sub-varieties by particular names."

Albino varieties, of course, form an exception, and of these the most distinct are var. Wageneri, having pure white flowers, with a yellow disc, and Reineckeana, in which the sepals and petals are white and the front lobe of the lip marbled with rosy crimson. Both, however, are extremely variable, and between the letter, especially, and the type, numerous intermediate forms occur which have received distinctive varietal names, though many of them could be better described as individuals than varieties.

CALLISTA AMABILIS.—The history of the long-lost Callista amabilis, Lour., and of a plant identified with it by Dr. Kränzlin, were recently given (pp. 99, 100), and the latter has now flowered with Dr. H. Goldschmidt, who has kindly forwarded flowers. They are very different from those of Loureiro's plant, and I believe represent a light-coloured form of Dendrobium hercoglossum, Rchb. f.—R. A. R.

SOCIETIES.

ROYAL HORTICULURAL.

THE HOLLAND HOUSE SHOW.

THE Summer Show of the Royal Horticultural Society was held at Holland House, Kensington, on Tuesday and Wednesday, July 5th and 6th, and was a great success. The display of Orchids was excellent, and the awards consisted of two Gold Medals, three Silver Cups, one Silver-gilt Medal, two First-class Certificates and three Awards of Merit.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very rich and varied group, to which a Gold Medal was awarded. It contained a large raised bank of showy things, with numerous small and rare species in front. Prominent in the centre were some fine Cattleyas and Læliocattleyas, including the beautiful Cattleya Rex, C. Warscewiczii, King Edward VII., a magnificent form, with a very dark purple-crimson lip and two small whitish blotches in the throat, some fine Læliocattleya Canhamiana and var. alba, L.-c. Phœbe, some well-flowered Oncidium macranthum, O. superbiens and other species, some beautiful Odontoglossums, including O. × Thompsonianum, O. × Lady Roxburgh (cirrhosum × percultum), a graceful and beautiful spotted hybrid, O. × Gatton Glory (triumphans × percultum), Dendrobium × Arthur Ashworth (Brymerianum × pulchellum), a pretty yellow flower with fringed lip bearing two maroon blotches at the base, Zygopetalum rostratum and the handsome Z. × Roeblingianum, Brassia longissima, Cochlioda Nœtzliana, some good Odontioda Bradshawiæ, a lot of Cypripedium callosum Sanderæ, the beautiful white Miltonia vexillaria Queen Alexandra, M. × Bleuana nobilior, the rare Eriopsis rutidobulbon, Cirrhopetalum pulchrum and biflorum, Bulbophyllum barbigerum, inflatum, Godseffianum, lemniscatoides, and the remarkable B. grandiflorum, Gongora quinquenervis, the woolly Eria pannea, Nephelaphyllum pulchrum, Masdevallia calura, melanoxantha, cucullata, gargantua, and various others, Cœlogyne Schilleriana, Epidendrum prismatocarpum, Brassavolæ, fragrans and alatum, Physosiphon Loddigesii, Pleurothallis stenopetala, the graceful Dendrochilum filiforme, Eulophia Ledienii, &c.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a small and choice group, including Cattleya Gaskelliana, Mrs. Goodson, a pretty white form with a purple spot on the front of the lip, C. × F. W. Wigan, Warscewiczella Wailesiana, a fine example of Odontoglossum × Wiganianum, O. × eximium, O. × Lambeauianum var. St. David, O. × illustre Radium, Cochlioda Nœtzliana, Odontioda heatonensis, Læliocattleya Acis (C. Mendelii × L. tenebrosa), and the rare Dendrobium Williamsianum.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent a beautiful albino of Odontoglossum Pescatorei, called O. P. alba, Fowler's variety, having pure white flowers with a deep yellow crest to the lip, and the rare Catasetum thylaciochilum, Lem., closely resembling C. Russellianum in colour, but having a very different sac to the lip.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed Cattleya Warscewiczii, Mrs. E. Ashworth, a very pretty blush white variety.

Messrs. Sander & Sons, St. Albans, staged a magnificent group, to which a Gold Medal was awarded. It was very artistically arranged with three banks and two intervening depressions. The back of the central group consisted of some fine plants of Phalænopsis amabilis Rimestadiana and Dendrobium Phalænopsis, with various choice things in front, while the dell on the left contained a bright cluster of the beautiful Dendrobium regium, a fine lot of Odontoglossum Williamsianum, &c. On the other side and at the ends were massed a lot of Læliocattleyas and Odontoglossums, &c., producing a very brilliant effect. Among numerous showy things noted were some good forms of Læliocattleya Martinetii, Canhamiana, Aphrodite, and bletchleyensis, L.-c. lucida (L.-c. Phœbe × C. Warscewiczii), L.-c. Eva (C. Gaskelliana × L. tenebrosa), some fine Cattleya Mendelii and C. Warscewiczii, C. Mossiæ Wageneri, C. × Dupreana (Warneri × Warscewiczii), C. × fulvescens, a good C. Leopoldi, a splendid dark Vanda cœrulea, and a beautiful example of the rare natural hybrid V. × Moorei, Lælia crispa, L. xanthina Sanderæ, a very pale form, Anguloa Clowesii and A. Ruckeri, a very fine form of Cochlioda vulcanica, Brassolælia Helen, Bulbophyllum barbigerum, a good B. virescens, Nanodes Medusæ, Odontoglossum × Thompsonianum, O. × Fletcherianum, O. × Rossianæ and var. rubens, remarkably diverse in colour, and many other Odontoglossums, the rare Aganisia ionoptera, Houlletia Sanderi, Lycaste peruviana, Paphiopedilum glaucophyllum, Oncidium unicorne, macranthum, Harrisonianum, porrigens, and leucochilum, Epidendrum prismatocarpum, the beautiful Odontioda St. Fuscien, Brassocattleyas, Sophrocattleya Danæ and many other interesting things. A First-class Certificate was given to Miltonia vexillaria Lambeauiana, a very large and beautiful pure white variety, with a few rosy lines on the lemon yellow disc of the lip, and Awards of Merit to Cattleya Mendelii, King George V., a very remarkable rosy blush form with much crimped petals, and the front half of the lip magenta-rose, distinctly fimbriate and very undulate; to C. × Dietrichiana (superba × Hardyana), a very fine hybrid, with rosy lilac sepals and petals, and the front of the broad lip rich ruby purple, with some yellow in the throat; and to Cypripedium Curtisii, Sander's var., a very large and finely coloured variety.

Messrs. Stuart Low & Co., Bush Hill Park, staged a large group of showy things, with numerous small botanical Orchids in front. We noted some good Dendrobium nobile virginale, the violet-blue D. Victoria-Regina, D. glomeratum, D. × rhodostoma, good white and other varieties of Cattleya Mendelii and Mossiæ, C. Warscewiczii, Oncidium macranthum, unicorne, sphacelatum, and divaricatum, a good Acineta Humboldtii, Lycaste Deppei, Bulbophyllum claptonense, Angræcum Scottianum, Promenæa xanthina, Scuticaria Hadwenii, Odontoglossum Williamsianum, Pescatorei, and many others, Epidendrum vitellinum, E. Brassavolæ, Renanthera Imschootiana, Anguloa virginalis Turneri, the rare Bifrenaria tyrianthina, Cypripedium niveum, C. callosum Sanderæ, Pleurothallis stenopetala, Masdevallias, &c. A First-class Certificate was given to Cattleya Mendelii var. Stuart Low, a most beautiful albino, with the usual yellow in the throat of the lip, and a Silver Cup was awarded for "Orchids, Carnations, Roses and berries."

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Cup for a very brilliant and effectively arranged group, the centre of which consisted of many plants of Phalænopsis amabilis, with a lot of the brilliant Epidendrum vitellinum beneath and Dendrobium Phalænopsis on each side. Near by was a brilliant series of the handsome Odontoglossum Williamsianum and a plant of O. × Smithii, with six flowers—one of the most beautiful Orchids in the Show—the beautiful O. × armainvillierense xanthotes, a remarkable double form of O. crispum, O. citrosmum roseum, and others. We noted also a brilliant series of Læliocattleyas, including L.-c. Canhamiana Fire King, L.-c. Canhamiana alba, a beautiful yellow L.-c. Ceres (L. × Phœbe × C. Mossiæ Reineckeana), Dendrobium Sanderæ, Odontioda Charlesworthii, O. Lutetia, O. heatonensis, O. Bohnhoffiæ, and a richly-coloured O. Goodsonæ, with a distinct yellow tracery in the sepals and petals, a beautiful Cattleya Mossiæ Wageneri, some good coloured forms of C. M. Reineckeana excelsa, fine examples of C. Warneri and Warscewiczii, Sobralia xantholeuca, *Zygocolax* Charlesworthii, Chysis lævis, Satyrium coriifolium, Dendrochilum latifolium, the distinct Catasetum tenebrosum, with blackish purple sepals and petals and a green lip, Bollea Lalindei aureum, Masdevallia Schlimii, a Lueddemannia—possibly L. Lehmannii—bearing a long drooping inflorescence, some good Oncidium Lanceanum, Epilælia tenecarpa, and many other good things.

Messrs. Mansell & Hatcher, Rawdon, Leeds, also received a Silver Cup for a fine group, rich in quality and most artistically arranged. The centre consisted of some fine Cattleya Warscewiczii, with showy Odontoglossums and Miltonia vexillaria, while on either side were clusters of Renanthera Imschootiana and the brilliant Cochlioda Nœtzliana, with a lot of showy Læliocattleyas, Cattleyas and Odontoglossums at the ends. We noted also

a lot of Oncidium Lanceanum, a fine O. macranthum, O. Schlimii, a nice lot of Dendrobium Dearei, two good D. Sanderæ, some fine Phalænopsis amabilis, Odontoglossum × percultum, O. × Rolfeæ, × amabile, × armainvillierense, × spectabile, and × tigrinum, a very fine O. × Queen Alexandra, Masdevallia muscosa and peristeria, Promenæa xanthina, Cœlogyne pandurata, a very richly-coloured Vanda cœrulea, Stanhopea Ruckeri, some brilliant Odontioda Bradshawiæ, Miltonia × Bleuana, M. vexillaria chelseiensis, two beautiful Cattleya Mossiæ Wageneri, C. Mendelii, Maxillaria nigrescens, Cypripedium Parishii, Angræcum Scottianum, Bulbophyllum barbigerum, Brassocattleya Maronæ, Brassia verrucosa, and many other fine things. The group was large and excellent in every respect, while the effect of massing the various kinds was particularly beautiful.

Messrs. James Veitch & Sons, Chelsea, included a batch of good Orchids in their Gold Medal group of Stove plants, e.g., several good Disa × Luna, three fine Læliocattleya Canhamiana, another fine Læliocattleya derived from L.-c. eximia and Lælia tenebrosa, Cattleya Mossiæ Wageneri, C. × Madame Myra Peeters, Odontoglossum × altum, Dendrobium Bronckartii, a fine Epidendrum prismatocarpum with seven scapes, and Anguloa Clowesii.

Messrs. R. Wallace & Son, Chelmsford, included nice clumps of Orchis foliosa and O. maculata superba in a very fine group of hardy plants.

At the meeting held on July 19th, at the Royal Horticultural Hall, Vincent Square, Westminster, there was a moderate but very choice display of Orchids, and the awards consisted of two medals, two First-class Certificates, three Awards of Merit, two Botanical Certificates and three Cultural Commendations.

Lt.-Col. Sir G. L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received a First-class Certificate for a magnificent specimen of Cattleya Warscewiczii, Low's var., bearing 14 flowers. It is a large dark variety, with a very deep crimson-purple lip, and a pair of small yellowish blotches in the throat. He also received an Award of Merit for C. × Artemis (Iris × Gaskelliana), a fine hybrid, having pink sepals and petals, and a purple-crimson lip, margined with lavender, and the centre orange coloured, passing to cream white on the side lobes. A Cultural Commendation was given to Mr. Alexander for two splendid specimens of Miltonia vexillaria Queen Alexandra, one with seven spikes and 36 flowers, the other with six spikes and 29 flowers, all being of remarkable size and quality.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), sent a very pretty little group, including Brassocattleya Joan (B. nodosa × C. Warscewiczii), a pretty hybrid, having white flowers spotted with rose-purple on the lip and back of the segments, Calanthe japonica, with purple

flowers, a fine plant of Masdevallia deorsa with eight flowers, and a very fine Cypripedium × W. R. Lea, Burford var., with four spikes and eleven flowers, for which a Cultural Commendation was given to Mr. White. Botanical Certificates were given to the pretty little Liparis rhodochila, having green flowers with an orange-red lip, and to Bulbophyllum Rhizophoræ, a dwarf West African species bearing a number of drooping spikes of brownish red flowers.

Sir Jeremiah Colman, Bart., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group, including Odontoglossum × Queen of Gatton (triumphans aureum × percultum), a fine light yellow flower heavily blotched with dark purple, Ancistrochilus Thomsonianus, two good forms of Odontioda Bradshawiæ, the Javan Dendrobium arcuatum, bearing short racemes on the old pseudobulbs, the flowers being white, with long spurs, D. × Ashworthii, the fine Aëranthes grandiflorus, Xylobium leontoglossum, Pleurothallis stenophylla, Dendrochilum filiforme, and several cut flowers of Sobralia × Colmanii of varying shades of light yellow. A Cultural Commendation was given to Mr. Collier for a fine plant of Cattleya Rex, bearing a spike of seven flowers.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontioda Seuenacca (C. Nœtzliana × O. Hunnewellianum), an interesting hybrid, most like the Cochlioda parent in general character, and the flowers having a yellow ground colour, with very numerous orange red markings. The specific name is the old Saxon name for Sevenoaks.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent two plants of the handsome Cattleya Rex.

A. Harrison, Esq., Lyndhurst, Watford, sent a good plant of Epidendrum Parkinsonianum and a few Cypripedes.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent four plants of Odontioda Thwaitesii (C. vulcanica × O. Harryanum), a handsome rose-purple hybrid, showing various shades of bronzy claret and purple, with paler lips.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Gaskelliana Queen of the Earth, a good white form with a tinge of lavender on the front lobe of the lip.

Messrs. Stuart Low & Co., Bush Hill Park, staged a fine group, to which a Silver Flora Medal was given. It contained a number of Cattleya Warscewiczii, C. Gaskelliana, C. G. alba, some good C. Rex, with examples of C. maxima, C. Lueddemanniana striata, C. Forbesii, C. × Miss Williams, &c., Stanhopea Wardii, Masdevallia infracta, calura, ephippium, muscosa, and others, while at the back were a number of Oncidiums, Epidendrums, Cœlogyne Dayana, Odontoglossum Pescatorei, Dendrobium Dearei and other good things. A First-class Certificate was given to Cattleya

O'Brieniana alba, a very beautiful pure white form with a sulphur yellow disc to the lip.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a very fine group, including some good Læliocattleyas, two examples of Cattleya Rex with ten flowers each, a fine example of C. Gaskelliana Snowflake with twelve flowers, C. × mollis, C. × Wavriniana, the handsome Pescatorea Lehmannii, numerous Odontoglossums, including some good O. crispum, O. × excellens, O. × armainvillierense, &c., some fine Dendrobium Phalænopsis, Brassocattleya Pluto, and a striking hybrid between Cattleya Grossii and Brassavola Digbyana, the charming little Orchis monophylla, with lilac flowers, and the leaves mottled with brown and green, Eria densa, Cirrhopetalum Roxburghii, Notylia bipartita, and other interesting things. An Award of Merit was given to Oncidium Sanderæ, a species of the O. Papilio group, approaching O. Kramerianum, but without the swollen nodes of the inflorescence. The dorsal sepal and petals are linear, erect, and sepia brown, the decurved lateral sepals yellow with reddish markings, the lip crisped, light yellow with reddish markings on the side lobes and margin, and the column bearing beard-like glands on each side.

Messrs. Charlesworth & Co., Haywards Heath, sent a very interesting little group, including two plants of Dendrobium Sanderæ, a fine Chysis lævis, Lælia monophylla, and other interesting things, including several Cycnoches maculatum, showing both male and female flowers on separate plants, while one plant bore a spike of nine male flowers with one larger flower at the base in a transition state between the two sexes. An Award of Merit was given to Pescatorea lamellosa, a rare species with cream yellow flowers, striped with dark purple on the fleshy ridged crest of the lip.

Messrs. J. & A. A. McBean, Cooksbridge, exhibited a fine plant of Odontoglossum × ardentissimum Doris, bearing a branched panicle of white flowers, heavily blotched with claret-purple.

OPHRYS APIFERA VAR. ALBIFLORA.

AN albino of the Bee Orchis, Ophrys apifera, is sent by G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Glos., together with the typical form. Mr. Moore writes (June 27th): "The Bee Orchis is just out, and we have found a white one, which, I think, is rare. I have not seen it before, and shall be glad to know if it is uncommon." The albino form is certainly rare, but is found occasionally growing with the type. It was recorded as early as 1817, in Curtis' *Flora Londinensis*, and a single flower figured (i. t. 31, fig. 1), together with the type, the author remarking: "Of the present plant a very elegant variety has been kindly communicated to me by the Rev. Mr. Uhthoff, of Huntingfields, who has observed it for several years in

the lawn before his house." Druce (*Fl. Berk.*, p. 477) records finding one specimen with white flowers on the Moulsford Downs, in Berkshire, and Townsend (*Fl. Hamp.*, p. 414) mentions that on the Downs above Ashford, Hampshire, the white form occurs with the type. A year or two ago we saw a fine continental specimen, but have mislaid the record for the moment. It is no doubt the Ophrys albiflora, Sprun., which is cited by Reichenbach under O. apifera (*Fl. Germ.*, xiii. p. 97). It is a very pretty variety, having white sepals and petals, the former with a bright green mid-nerve, and the lip light green, without the usual brown markings. R. A. R.

ODONTOGLOSSUM WILLIAMSIANUM.

THIS handsome Odontoglossum is now flowering in quantity in several establishments, and the question of its status has again been raised. It was described by Reichenbach in 1881 (*Gard. Chron.*, 1881, ii. p. 134), the author being uncertain whether it was a new species or a natural hybrid. He remarked: "This would be like Odontoglossum grande, whose colour it has, if the petals were not shorter, broader, blunter, and if the column had not uncinate wings, such as are found in Odontoglossum Insleayi and Schlieperianum. The keels would be like those of O. grande, were they not sharper and had they not an adventitious angle at each side. It may be a hybrid between the species just named and O. Schlieperianum." Nothing was stated as to its origin. It received a First-class Certificate from the R.H.S. on June 24th, 1884, and soon afterwards it was figured in the *Orchid Album* (iv. t. 163), when its habitat was recorded as Costa Rica. In 1887 Messrs. Veitch made it a variety of O. grande (*Man. Orch.*, i. p. 33), speaking of it as an unique plant in the collection of the Comte de Germiny, at Gouville, near Rouen. Some more definite information has recently come to hand. A flower has been figured in *Orchis* (ii. p. 49, fig. 22), where a letter from Mr. J. Van de Putte, of Ghent, is cited, stating that for four or five years his collector in the Sierra de Las Minas, Guatemala, sent each year three or four, once ten plants, and that in 1906 he himself obtained about fifty plants in the same mountains. He also adds that O. grande does not exist there. It is now clear that O. Williamsianum cannot be a natural hybrid between O. grande and O. Schlieperianum. It never appeared to me to be truly intermediate, and as the geographical indications were against it, I purposely omitted it from the list of Mexican Natural hybrid Odontoglossums (*O.R.*, ix. p. 260). It is evidently a local species, nearly allied to O. grande, which it closely resembles in colour, but differing in its much longer inflorescence, smaller flowers, shorter, very obtuse petals, and the uncinate column wings, in the latter respect resembling O. Schlieperianum and O. Insleayi. It also flowers much earlier in the season than O. grande. R. A. ROLFE.

PAPHIOPEDILUM GLAUCOPHYLLUM HYBRIDS

Two strikingly diverse hybrids, said to have been raised from Paphiopedilum Curtisii and glaucophyllum, are sent from the collection of Dr. Hans Goldschmidt, Essen Ruhr, Germany, the sender remarking that they were received from the Brandt collection, Zurich (gr. Mr. Miethe). One is marked as Curtisii × glaucophyllum niveum (the varietal name we do not remember), and has a two-flowered scape, and the expanded flower is most like that of P. glaucophyllum, the petals, however, being densely dotted with purple-brown and the lip and staminode enlarged. The dorsal sepal is broadly ovate, 1¾ inches broad, green with some dusky brown suffusion and veining at the base, and a cream-yellow margin. The petals are 2½ inches long, spreading, ciliate, somewhat undulate, and densely spotted with purple-brown on a pale ground. The lip is two inches long, suffused and minutely dotted with light purple on a yellowish ground, and the staminode obovately orbicular, with three obscure teeth, under half an inch broad, and dusky brown. The other is recorded as Curtisii × glaucophyllum, and has also a two-flowered scape, but the expanded flower is most like P. Curtisii. The dorsal sepal is short, over two inches broad, purple at the base, with darker stripes, green in the upper central part, and whitish at the margin. The petals are somewhat curved, purple, and closely dotted, almost as in P. Curtisii, while the lip is 2½ inches long, and much resembling the same species. The staminode is transversely oblong, with three obscure teeth, nearly ¾ inch broad, and dusky purplish. The record suggests that they are from two different crosses, and in neither case can the result be called intermediate. The dispersal of the Brandt collection makes confirmation of the parentage difficult, but we believe that Mr. Miethe has the record books, and may be able to throw some light on the matter.

THE HYBRIDIST.

PAPHIOPEDILUM × COMPTEI.—A handsome hybrid raised by M. Joseph Ginot, St. Etienne, France, from P. × exoptatum (superciliare × ciliare) crossed with the pollen of P. Fairrieanum. The cross was made in October, 1905, the seed sown in the following May, and the first flower expanded in July of the present year. It is a handsome thing, comparable with P. × Juno, but lighter in colour. The dorsal sepal is ovate-orbicular, two inches broad, and closely striped with purple on a whitish ground. The petals are drooping, 2½ inches long, undulate, pale greenish, dotted with purple-brown, and suffused with purple at the closely ciliate margin. The lip is suffused with purple-brown in front, and the staminode reticulated with dull green in the centre. M. Ginot remarks that the plant from which the pollen was obtained was out of an importation by Messrs. Sander and

Sons, and is the actual plant figured at page 329 of our fourteenth volume—a rather dwarf form of the species.

BRASSOCATTLEYA SANDHAGHENSIS.—A flower of the very distinct and striking Brassocattleya sandhaghensis, which was figured at page 241 of our last volume, is sent from the collection of Mr. Gustave H. Müller, Huis Sandhaghe, Den Haag, Holland. The sepals and petals are somewhat spreading, about three inches long, and light brownish green, and the petals are suffused with light purple at the apex. The lip is very deeply three-lobed, and the front lobe over two inches broad, well fringed, suffused and veined with light purple, and the base and throat light yellow. The side lobes are broad, overlapping, fringed, yellowish white in colour, and veined with light purple at the apex. It shows both the floral character and dwarf habit of the Cattleya parent very strongly, but the colour and the much-fringed lip show the influence of the Brassavola parent.

ARACHNANTHE LOWII.

A PHOTOGRAPH showing a well-flowered plant of the remarkable Arachnanthe Lowii is sent by the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, and we regret that, partly owing to its size and partly to the fact that it was not isolated from other plants growing around it, it is unsuitable for reproduction in our pages. The pot is supported on a pedestal, so that the base of the plant is about level with the stage, and there are two fine stems, leafy almost to the base, and the plant bears eight long racemes, which are carried up to a support nearly as high as the top of the plant, and then hang down nearly to the floor. The photograph is quite sharp, and the pubescence of the racemes can be made out with a lens, also the different shape of the orange-coloured flowers at the base of the inflorescence. It represents a fine specimen of this remarkable Orchid.

The economy of the two kinds of flowers has, we believe, never been made out, and so far as can be seen by examination both are equally perfect. It has probably some connection with the fertilisation of the flowers, a point on which, apparently, nothing is known. Observation of the plant in its native home might throw some light on the question.

The species is a native of Borneo, and the following note about it, together with a figure, is given by Wallace (*Malay Archip.*, i. pp. 127, 128):—"The interesting group of Orchids is very abundant, but, as is generally the case, nine-tenths of the species have small and inconspicuous flowers. Among the exceptions are the fine Cœlogynes, whose large clusters of yellow flowers ornament the gloomiest forests, and that most extraordinary plant, Vanda Lowii, which last is particularly abundant near some hot springs at the foot of the Peninjauh Mountain. It grows on the lower branches of trees, and its strange pendant flower-spikes often hang down so

as almost to reach the ground. These are generally six or eight feet long, bearing large and handsome flowers three inches across, and varying in colour from orange to red, with deep purple-red spots. I measured one spike, which reached the extraordinary length of nine feet eight inches, and bore thirty-six flowers, spirally arranged upon a slender thread-like stalk. Specimens grown in our English hot-houses have produced flower-spikes of equal length and with a much larger number of blossoms."

ORCHIDS IN SEASON.

A FINE spike of Odontoglossum × Crawshayanum (Hallii × Harryanum), combining well the character of its parents, is sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, who calls attention to the curious fact that all the stigmas have gone black, or rather dark brown. One flower had been fertilised, but gone off, and Mr. Stevens asks whether there can be any connection between the two circumstances. We do not remember seeing such a case before, and should be glad to know if any of our readers can suggest an explanation. The flowers seem perfect except for the discoloration of the viscid matter which covers the stigma.

A curious freak of Paphiopedilum × Maudiæ is sent by Messrs. Sander and Sons, St. Albans, which apparently consists of a single sepal, the lower one—two petals, the lip, and three stamens; the staminode and dorsal sepal being apparently absent. The staminode, however, has reverted to an ordinary anther, which is the really interesting feature of the flower, while the dorsal sepal is divided, one half being united to the upper margin of one petal, and the remaining half to the other. The flower has a very droll appearance, and it requires a very slight stretch of imagination to compare the lip and petals to the head and ears of a donkey, the latter particularly well developed.

A remarkably fine flower of Cattleya granulosa Schofieldiana is sent from the collection of E. F. Clark, Esq., Teignmouth, which measures over 5½ inches from tip to tip of the petals. Both sepals and petals are heavily blotched with purple brown, while the lip is well developed, rosy purple, and bears very numerous papillæ. A flower is also sent from a plant purchased as a hybrid from Lælia crispa × Læliocattleya callistoglossa. It is about as large as Lælia crispa; the sepals and petals are suffused with lilac, and the lip slightly three-lobed, crisped, with the base of the front lobe dark purple, shading off to nearly white with some rosy veining in front. The pollinia are somewhat unequal, so that the parentage is probably correct.

LÆLIA ITHONE.—Another flower from the batch of seedlings obtained from Lælia purpurata alba crossed with the original Læliocattleya Lucia—

now decided to be a form of Lælia × Latona (see p. 188)—is sent from the collection of E. F. Clark, Esq., Teignmouth, being the fifth of the batch to flower. It has bright ochreous yellow sepals and petals, and the front of the lip rich purple-crimson, with some dark veining in the throat, thus recalling L. × Latona. The other seedlings have been creamy white. The pollinia are eight, and equal in size, thus being typical Lælia.

CYCNOCHES STELLIFERUM AND EGERTONIANUM.

THE Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, writes:—"References having been made frequently during the last two or three years in the *Orchid Review* to the flowers of the genus Cycnoches, it may be of interest to record that a plant of C. stelliferum with me is now in flower, bearing on the same raceme two female and one male flower. I think this is rather unusual, though I have sometimes suspected that it might occur, as I have several times noticed on the spike of female blooms an undeveloped bud, which gave the idea that something of the sort might occur."

It is also interesting to note that the plant of C. Egertonianum which produced flowers of both sexes, and was illustrated two years ago (*O. R.*, xvi. p. 296, fig. 38), has now produced at Kew an inflorescence of three flowers in a transition state. They are nearly as large as in the female, and most like it, but the segments are less fleshy, and bear some purple-brown markings near the apex, while on the lips occur a few prominent teeth, as in the case recorded by Dr. Lindley. The columns are also somewhat elongated, and bear imperfect anthers.

R. A. R.

CATTLEYA × FABIA ALBA.

A FLOWER of a beautiful white form of Cattleya × Fabia is sent from the collection of J. Leemann, Esq., West Bank House, Heaton Mersey, by Mr. Smith, who gives its history as follows:—It was raised by Mr. Preston from Cattleya labiata alba × C. Dowiana alba. Three seedlings purchased from him have flowered, and two are C. × Fabia with cream-white sepals and petals and a coloured lip, the third is the pure white form enclosed. It is a true albino with the usual yellow disc, and is very beautiful. Mr. Preston states that he has flowered all his seedlings of this cross, and that four or five were typical coloured C. × Fabia, but the majority had cream-white sepals and petals, like the two above mentioned by Mr. Smith. It is a case of great interest; an albino crossed with the normal form of another species, yielding seedlings most of which may be termed intermediate, while one has reproduced the albinism of one parent, and four or five others have taken the same colour as if the ordinary coloured form of the parents had been used. But it is not an isolated case, and we clearly get dissociation when albino forms of a species are used as parents.

ORCHID NOTES AND NEWS.

THREE meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during August, on the 2nd, 16th, and 30th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 8th, the meetings being suspended during August. A very interesting programme has been arranged for the coming Session, the competitions being as follows :—

CHARLESWORTH'S CUP (value 50 guineas), to be won outright in one season by the Amateur gaining the highest number of points for plants which have never been previously certificated by the Society. A prize of 5 guineas will be given to the gardener of the winning Amateur.

R. ASHWORTH'S CUP, to be awarded for general excellence and arrangement.

ROBSON'S CUP (value 100 guineas), for Odontoglossums; to include species, varieties, and hybrids, also Miltonia vexillaria and Roezlii, with their varieties, and any hybrid obtained from them; also Odontioda and any hybrid raised between any species of Cochlioda or Mesospinidium and Odontoglossum. To be won by the Amateur who gains the largest number of points in any two years, dating from June 23rd, 1910. A prize of 5 guineas will be given to the gardener of the winner.

AMATEUR COMPETITION.—The Society offer Gold, Silver-gilt and Silver Medals for the Amateurs who (not engaged in other competitions) gain respectively the highest, second highest, and third highest number of points from June 23rd, 1910, to May 25th, 1911.

SMALL AMATEUR'S COMPETITION.—Similar awards under similar conditions will be made to Amateurs who grow Orchids without the aid of a gardener, the minimum number of points to be gained in this class not to be less than nine.

NEW RULES FOR COMPETITORS.—Plants which have been certificated by the Society up to the date of June 23rd, 1910, cannot be submitted for a confirmed award, but a plant which has received an Award of Merit may be entered for a First-class Certificate. Sectional groups put up for the various Cup Competitions, and being awarded points for such competitions, may not be entered for the Society's ordinary medal awards. (Competitors for Mr. R. Ashworth's Cup are exempt from this Rule). Competitors must sign a declaration, and hand same to the Hon. Sec., of the competitions in which they wish to take part. All points will be awarded according to the Society's Award List.

R.H.S. SCIENTIFIC COMMITTEE.—The following references to Orchids exhibited at meetings of the Scientific Committee are taken from the Official Report. They commence from the date of our last notes (*O.R.*, xvii. p. 319) :—

November 9th, 1909 :—

MALFORMED ORCHIDS.—Mr. G. Wilson, F.L.S., showed malformed Lycaste Skinneri, Odontoglossum and Cattleyas, upon which Mr. Rolfe, A.L.S., who examined them, reported as follows : "The flower of Lycaste Skinneri has a free, dark purple filament, ¾in. long, opposite to one of the side lobes of the lip, and as the latter has lost its colour and become like the petals in texture, it is an evident case of replacement. There are three flowers of Cattleya labiata, one in which the lip has reverted to a simple petal, giving a regular perianth, while the column is straight and has an additional perfect anther, showing that one side lobe of the lip has been developed as an anther, while the other has been suppressed. In a second flower the sepals have become petal-like in shape and colour. In the third flower there are two sepals, two petals, and a slender column and anther, the lip being being totally suppressed, and the flower dimerous. The other is a three-flowered inflorescence of Odontoglossum crispum in which the column is abortive in each case, and the lip rather full, though otherwise normal."

November 23rd, 1909 :—

CATTLEYA WITH DIPHYLLOUS GROWTH.—Mr. Hawkes, Osterley Park Gardens, sent a growth of Cattleya Gaskelliana which had produced two leaves. This condition, Mr. Rolfe, A.L.S., said, is probably a reversion to an ancestral type, and is occasionally seen in other monophyllous Cattleyas.

December 12th, 1909 :—

SEEDLING ONCIDIUM.—Mr. Wilson, F.L.S., showed a flower of a hybrid Oncidium (O. tigrinum × O. lamelligerum) raised by Messrs. Charlesworth. This is the first recorded seedling of an Oncidium raised in this country.

January 11th, 1910 :—

ORCHID HYBRID BETWEEN ALBINOS.—Mr. Thwaites, Streatham Hill, showed a flowering plant of Cattleya Gaskelliana alba ♀ × C. Mendelii alba ♂. The flowers were not pure white, as in the parents (although they appeared to be so in the bud), but had a faint and very pleasing pearly-pink flush over them. So far, two plants have flowered with the same character ; others are in bud.

February 22nd, 1909 :—

MALFORMED CYPRIPEDIUM.—From Lord Avebury, P.C., came malformed specimens of Cypripedium barbatum. One flower showed the

anterior sepals completely divided. They were referred to Mr. Crawshay for examination.

March 8th, 1910:—

MALFORMED CYPRIPEDIUMS.—Mr. L. Crawshay showed drawings illustrating the malformations shown in the twin-flowered inflorescence of Cypripedium barbatum from Lord Avebury exhibited at the last meeting. He remarked that the two-flowered scape had branched about the middle. The terminal flower had a complete perianth except the labellum, which was absent, its only indication being a median streak in the anterior sepal. The column was formed of normal anthers and two staminodes, the stigmatic plate being absent and its place occupied by the anterior staminode. The ovary contained two placentas placed opposite to one another. The lateral flower was normal in every way except in the trimerous outer whorl of the perianth, which showed reversion to the primitive type, the three segments being divided to the base. The ovary contained only one placenta, placed anteriorly.

May 3rd, 1910:—

MALFORMED ORCHID.—Mr. Crawshay showed an inflorescence of the natural hybrid Odontoglossum × Leeanum, every flower malformed, all the petals except the lip being absent.

ORCHID PORTRAITS.

CATTLEYA × F. W. WIGAN.—*Journ. Hort.*, 1910, ii. p. 27, with fig.

CATTLEYA MENDELII VAR. STUART LOW.—*Gard. Chron.*, 1910, ii. pp. 34, 35, fig. 13; *Gard. Mag.*, 1910, p. 574, with fig.

CATTLEYA O'BRIENIANA ALBA.—*Journ. Hort.*, 1910, ii. p. 75, with fig.

CATTLEYA WARSCEWICZII ALBA.—*Gard. Chron.*, 1910, ii. p. 51, with fig.

CYPRIPEDIUM CALLOSUM SANDERÆ.—*Journ. Hort.*, 1910, ii. p. 51, with fig.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].*

J. R., Tonkin.—1, Bletilla hyacinthoides, Rchb. f.; 2, probably Phalænopsis Parishii, Rchb. f. Can you throw any light on the Orchid described as Callista amabilis by Loureiro? See notes at pp. 99 and 242.

J. G.—Eria convallarioides, Lindl.

C. K. G.—Many thanks. We will make the necessary note next month.

W. H. M., T. L. M.—Letter follows.

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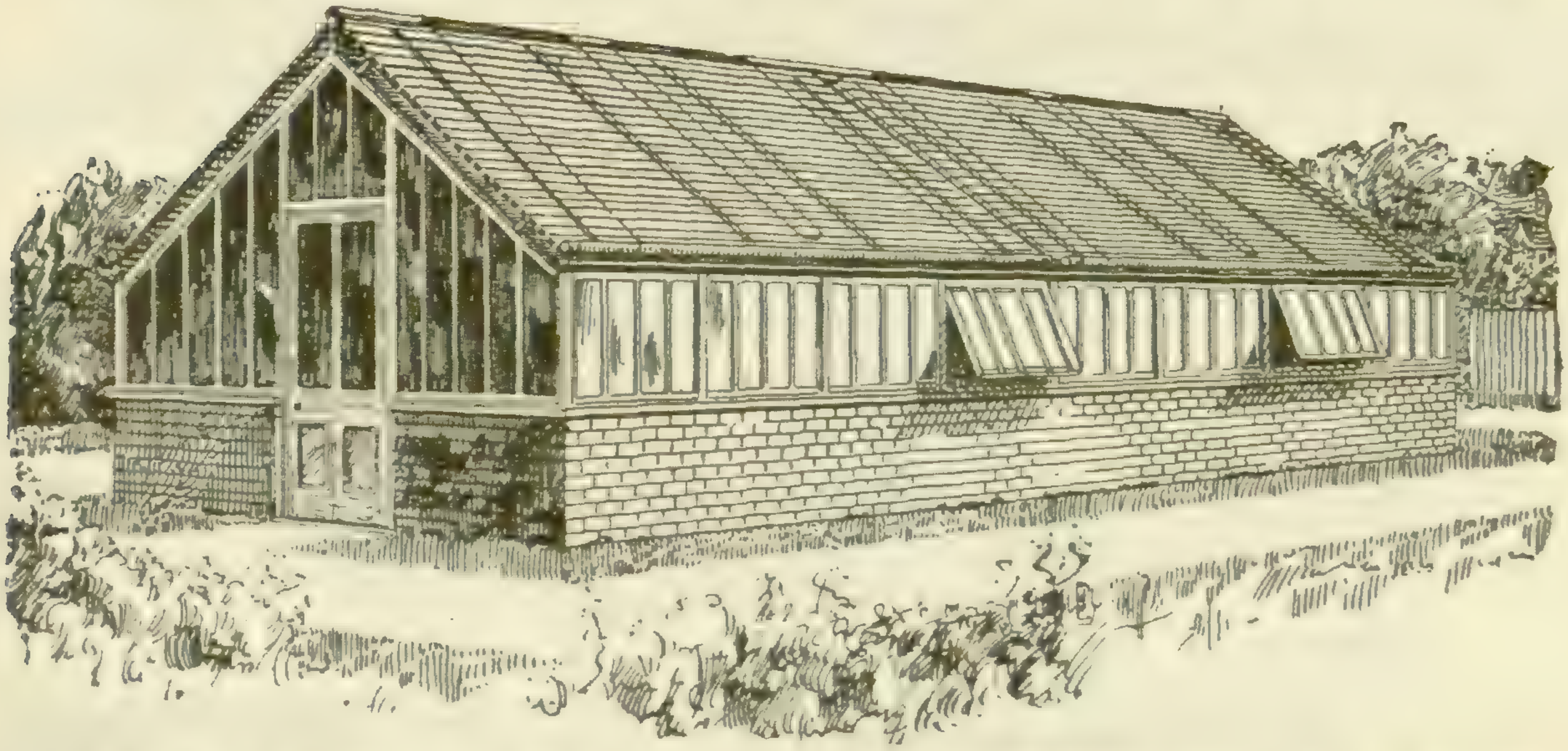

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Oncidium Gardneri, 5 bulbs, fine spike with 20 blooms	...	0	10	0
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The next MEETING of the COMMITTEE for the purpose of adjudicating upon the Orchids submitted will be held at the Coal Exchange, Manchester, on September 8th, 1910, at 12 o'clock prompt.

Open to Members from 1 to 4 p.m.

P. WEATHERS, Hon. Sec.
Botanical Gardens, Manchester

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VOL. XVIII.] SEPTEMBER, 1910. [No. 213.

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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ORCHIDS AT BURFORD.

THE remarkable Cypripedium Stonei platytænium has become almost a tradition to modern Orchidists, so seldom is it seen or heard of, but the other day we had the pleasure of seeing a fine plant, bearing two inflorescences of three flowers each, in the rich collection of Sir Trevor Lawrence. The plant has six growths, and another smaller healthy plant stood beside it. It is a unique sport from C. Stonei, and its petals, being enlarged to three times their normal breadth and handsomely spotted, give the plant an altogether distinct appearance. August is generally considered a rather dull season for Orchids, but we found a large number of interesting things in bloom, both species and hybrids, among the former being several which are very rarely seen.

On entering one of the Warm houses, in company with Mr. White, we noticed a fine plant of the reddish-orange Dendrobium Jerdonianum, now past its best, the rare Philippine D. Bullenianum, Angræcum filicorne, the rare Listrostachys forcipata, and the handsome Pescatorea Klabochorum. The unique Chondrobollea Frœbeliana was in bud, and it may be remarked that the plants of this affinity do well in the shady north-west corner of this house, in company with Phaius × Norman and shade-loving Cypripedes. Brassocattleya Joan (B. Perrinii × C. Warscewiczii) has white or lilac flowers, prettily spotted with purple, and varying in depth of colour. Sarcochilus hainanensis bore a dozen spikes, but none of the fugacious flowers were then expanded. Two plants of Cynorchis purpurascens were throwing up spikes, and it was pointed out that they were in the fibre in which they were imported nine years ago, possibly that of Asplenium Nidus, for Warpur states that it grows naturally on this and on Pandanus stems (*O.R.*, ix. p. 10). We also noted several blooms of Cypripedium superbiens, Spathoglottis Soutteriana, Bulbophyllum galbinum, and others. Among interesting things not in flower were two plants of the rare Neomoorea irrorata, Bulbophyllum orthoglossum, Cœlogyne Sanderæ, C. miniata, C. Fœrstermaniana, a plant which has been here for some twenty years but refuses to flower, and a species of Houlletia, which has not bloomed since 1881, when it came into the collection.

The next Warm house contained the Cypripedium Stonei platytænium previously mentioned, a fine C. × W. R. Lee, raised in the collection, and now bearing three spikes and eleven flowers, the richly-coloured C. × Mary Beatrice, C. × Argo-Rothschildianum, C. × Wiertzianum, C. × Lord Derby, a very fine C. × picturatum with twelve spikes, several of them twin, C. × Pollettianum with seven spikes, three of them twin-flowered, C. × Harrisander, C. × Lord Derby, two good C. × Mabeliæ, C. × Euryale with nine flowers, a good C. × Holtii (Curtisii × præstans), C. × Martin Cahuzac, and many others, the plants generally being in splendid health. Dendrobiums occupied the sunny side of the house, while a fine collection of Catasetums and allied genera was suspended from the roof, including C. maculatum in bloom and C. Bungerothii with five buds, also male spikes of Cycnoches chlorochilon and C. maculatum, with C. stelliferum in bud. Other interesting things in bloom were, the beautiful Dendrobium × formoso-Lowii, a pretty cream-coloured Eulophia from the Orange River Colony, Bulbophyllum Dayanum, and Saccolabium Witteanum in spike, while out of bloom were pointed out a fine plant of Megaclinium purpureorachis, a very curious Philippine Bulbophyllum twining round a branch, a fine plant of Tylostylus discolor on a raft, the remarkable leafless Vanilla Humblotii, several Schomburgkias, and many other interesting things which we must pass over. Some dwarf Fittonias, planted at the edge of the solid stage below the plants, and a row of Eucharis at the edge of the path gave a very neat appearance, and the latter are said to bloom well.

In the next two Warm houses we found plants of Thunia venosa in bloom, the fine Polystachya grandiflora, P. paniculata, an African species only recently introduced to cultivation, and a good plant of the remarkable Arachnanthe Lowii, with a spike of 26 flowers, the two basal ones being orange-coloured, while out of bloom were pointed out plants of Zygopetalum × Roeblingianum, Renanthera Storiei, Cleisostoma Fordii, Sarcanthus peninsularis, &c.

An adjacent Warm house contained a number of Sobralias, including part of the original S. Lucasiana, with broad white sepals and petals, and a rosy lip, with much yellow in the throat, the rare S. Lindenii, just out of flower, and a good Eulophia guineensis. A plant of Holothrix Schlechteriana was pointed out, with several Habenaria zambesina and H. Ugandæ, also about five dozen plants of H. militaris, approaching the flowering stage. The latter is a brilliant little species, having mottled leaves and flowers with a scarlet lip, which succeeds well at Burford. Its culture has been given in detail by Mr. White (*O.R.*, i. pp. 83-85).

The Odontoglossum house is filled with sturdy, well-grown plants, and Mr. White remarked that no top air is given during the day-time, as it is

conducive to a dry atmosphere, which is injurious, but that the top ventilators are opened a little at night. The temperature is regulated by means of the bottom ventilators, shading and damping down. Open stages are used, and the plants are stood upon inverted perforated pans, so that there is always a good circulation of air about the plants. The majority were out of bloom, but a few good things were in flower or bud, among those noted being a greenish white form of O. ramosissimum, O. Wallisii, and O. × Rolfeæ, a fine plant of Nanodes Medusæ with twelve flowers, a well-bloomed Stelis muscifera, and a very fine plant, on a raft, of the violet-blue Dendrobium Victoria-Regina, with eight flowering growths. A smaller plant in bloom hung beside it, and it is now clear that this is the correct position for this striking Philippine species.

Many interesting things were in bloom in the next house, those noted including the pretty little Kefersteinia graminea, Cirrhæa viridi-purpurea with five racemes, Gongora galeata, Cœlogyne Dayana, Miltonia Roezlii alba, M. Warscewiczii, the pretty Epicattleya matutina, Sophrolælia læta Orpetiana, the rare and pretty Chondrorhyncha fimbriata, Epidendrum floribundum, cinnabarinum, and Schomburgkii, the striking little Liparis rhodochila, Trichopilia Galeottiana, in bud, Dendrobium glomeratum, Oncidium Boothianum, Odontoglossum platychilum with five spikes, &c., while a fine plant of Dendrochilum filiforme in a 10-inch pan bore over 100 graceful spikes, and will produce a fine sight when the flowers are expanded. A good plant of *Zygopetalum maxillare* on a piece of tree-fern stem was showing several spikes.

Passing into another Warm house we found a lot of Vanda teres, V. × Miss Joaquim, and V. × Maronæ, not, however, in bloom, also a plant of the remarkable Lissochilus giganteus growing in a large pan of water, which has four growths, and seems healthy, but does not flower. The handsome L. stylites, however, was bearing a spike of eight blooms, while Dendrobium secundum and Phragmopedilum × calurum were also flowering, the latter with four good spikes. There was also a very curious West African Bulbophyllum, near B. calamarium, with long dense spikes and broad bracts, which has the back of the dorsal sepal covered with a sweet exudation like shining dewdrops. It is one of a considerable number sent by Sir Trevor's son, Captain Lawrence.

The rare Hartwegia purpurea in bloom and a plant of Schomburgkia Lyonsii throwing up a fine spike were interesting features of the Cattleya house next visited, where also was a fine plant of Brassocattleya Lindleyana, in an 18-inch pan, bearing several flowers, B.-c. Hyeæ, Brassolælia Helen, Lælio-cattleya Fascinator, L.-c. × Fernand Denis, a few Cattleya × Mrs. Pitt, C. Warscewiczii, and Dendrobium chrysotis in bud. Plants of Cypripedium concolor, growing in a compost of crocks and loam, were also

pointed out in the most robust health, the leaves six inches long and quiet perfect, while a number of twin-flowered spikes testified to their vigour.

In the next house was a good plant of the rare Warrea tricolor in bloom, examples of the brilliant Lælia monophylla, a very fine specimen of Oncidium incurvum in an 18-inch pan and bearing 25 spikes, the plant having been in the collection for about 25 years, O. leucochilum, O. barbatum, Bifrenaria vitellina, the deep-purple Calanthe japonica, C. veratrifolia, imported with the preceding, well-flowered plants of Maxillaria fucata and Hubschii, Pleurothallis strupifolia, Dendrobium triadenium and sanguinolentum, a good Odontoglossum Harryanum, and a plant of the rare Epidendrum Laucheanum, with a drooping spike three feet in length, but the flowers not yet expanded. A plant of the rare Cœlogyne pulchella was also pointed out.

The Phalænopsis house contains a lot of healthy plants, among which the rare P. Mariæ was noted, though not in bloom, and there was a healthy plant of Angræcum Kotschyanum suspended by a wire, and without any compost about its roots, yet it remains healthy and was carrying a good spike. It is literally an air plant, for it must obtain its nutriment from the moisture and gases contained in the atmosphere of the house. Polystachya odorata and Hæmaria Dawsoniana were in bloom, also a hybrid from Cypripedium Chamberlainianum and C. præstans, most like the former in habit, but showing the influence of the pollen parent in the shape and colour of the flowers. A plant of the rare Quekettia Jenmanii was pointed out, with Bulbophyllum Ericssoni and virescens, and an interesting hybrid Cœlogyne, which has not yet bloomed.

The Masdevallia house is always interesting, and we noted the rare M. velifera in bloom, with examples of M. hieroglyphica, muscosa, calura, gemmata, campyloglossa, × Rushtoni, × Stella, Veitchiana, coccinea, ignea, and a fine plant of M. deorsa, which recently produced eight flowers, both flowers and leaves being pendulous. We also noted a good Octomeria diaphana, Physosiphon Loddigesii, Scaphosepalum anchoriferum, Theodorea gomezoides, Promenæa xanthina and stapelioides, Odontoglossum Uroskinneri, Pleurothallis Grobyi, macroblepharis, riograndensis, stenopetala, prolifera, and various others. Plants of the Australian Sarcochilus Fitzgeraldi and S. Hartmanni, which have been in the collection for thirty years, were also pointed out. S. falcorostris was in bud.

In another Odontoglossum house we observed the very distinct Oncidium dasytyle, O. pulchellum in spike, and some plants of the new O. Claesii in thriving condition. Another species of the same section has been in the collection for about twelve years, but cannot be induced to bloom.

These notes have extended further than was originally intended, but one cannot deal with such a collection in a few words. After spending a

long morning in the different houses one cannot help wondering how many genera and species Sir Trevor's unique collection contains. A catalogue of these alone would occupy considerable space, to say nothing of hybrids, which are also well represented. A good many of the latter have been raised in the collection, though rare and interesting species unquestionably occupy a more prominent place, while the usual showy species are well represented. The requirements of such a varied lot of plants must keep Mr. White and his assistants pretty busy, and it says much for the intelligence and experience of the growers that the culture, generally, reaches such a high standard of excellence.

One cannot realise the richness of such a collection by a casual visit. It should be seen at every season of the year. There is a charm in such a varied collection of Orchids, in the endless variety of habit and mode of growth, the quaint distinctiveness of structure, and wonderful variety of colour and marking. The effect is kaleidoscopic and as varied as the seasons, and one cannot wonder at the continued and growing popularity of these fascinating plants.

THE BEE ORCHIS.

SOME time ago the following letter from Mr. E. Kay Robinson appeared in the *Daily News* on the subject of the shapes and colours of flowers, with special reference to the Bee Orchis:—

"Under your heading of 'Nature Notes' some criticism has been published of my view that Darwin and his followers have been quite wrong in supposing that the colours, markings, and shapes of flowers are due to selection by insects. I say that the advantage to the plants from these colours, markings, and shapes lies in deterring grazing and browsing animals from eating the blossoms, and I challenge any Darwinist to quote any single instance of a flower whose colours, markings, or shape are inconsistent with this view.

"On the other hand, I can quote hundreds of instances which are inconsistent with the orthodox view that these colours, markings, and shapes are due to selection by insects. It will suffice, however, if I quote only one.

"Of all our British wild flowers, the Bee Orchis, or 'Ophrys,' is perhaps the most remarkably coloured, marked, and shaped. In colour it exhibits extraordinary contrasts between pale pink in some parts and rich chocolate brown and yellow in others. In markings, the way in which the yellow is streaked upon the chocolate brown is very striking. In shape it is very remarkable, having a pair of apparent wings, a pair of apparent antennæ or feelers, a round, velvety body, and a *sting!* Now, if the colours, markings, and shapes of flowers are due to selection by insects, the

connection between this extraordinary flower and insects would necessarily bevery intimate. But *the Bee Orchis is a flower which has nothing to do with insects whatever.* It is self-fertilised.

"Now, I challenge any Darwinist to explain the colours, markings, and shape of the Bee Orchis in accordance with the theory that flowers owe their colours, shapes, and markings to insects. If no explanation is forthcoming the theory collapses.

"Of course, from my point of view, the remarkable resemblance of the Bee Orchis to a bee—with wings, antennæ, velvety body, and sting complete—has a very obvious meaning. The grazing animal does not wish to be stung by a bee, so it leaves the flower alone. This, as I have said, is only one of hundreds of instances which could be quoted."

To this challenge "G.G.D.," the writer of the "criticism," replies, showing how the whole structure and mechanism of the common sage—which is typical of a large family of bee-visited flowers—is adapted to fertilisation by insects, and very pertinently asks, "But what has the cow to do with it?" Concerning the Bee Orchis, he adds: "May I say briefly that I have never seen a pink-winged bee nor one with a body like the flower of a Bee Orchis, and that the alleged sting is not in such a position that a cow could possibly see it? I do not suggest that the selection of bees has controlled the progress of this flower, and, of course, Mr. Robinson sees that if it is like a bee, that serves just as well to keep away the bees which, as a self-fertiliser, it would rather be without, as to scare the cows."

In the *Country Side* for August the argument again appears. We are told that the Bee Orchis "is self-fertilised. It is not visited by insects; and if it were, it would gain nothing from such visits. How, then, can its colours and markings be due to selection by insects? Until this question is answered, and there are hundreds of similar questions which might be asked—it is not possible for anyone to justify the old belief that the beauty of flowers is due to insects."

Now there are two or three fallacies in this argument which it may be well to point out. In the first place, the flowers of the Bee Orchis must occasionally be visited by insects, for in the South of Europe there are natural hybrids between O. apifera and O. Scolopax, also between O. apifera and O. arachnites, and their occurrence is due to the fact that where allied species grow intermixed the insects, not limiting their visits to one particular species, transfer the pollinia of one species to the stigma of another, and hybridisation is effected. O. arachnites is also a British species, which is not self-fertilised, yet its flowers are so similar to those of O. apifera as to have been considered a variety of it by some botanists.

Again, Darwin has shown that in spite of its self-fertilising habit the flowers of the Bee Orchis retain the adaptations for cross-fertilisation by

insects, and he adds: "Judging from the structure of the flowers of O. apifera, it seems almost certain that at some former period they were adapted for cross-fertilisation, but that failing to produce a sufficiency of seed they became modified so as to fertilise themselves." For this and for other reasons it is practically certain that O. apifera and O. arachnites had a common ancestor, which effectually disposes of the argument that the flower of the Bee Orchis only acts as a warning to grazing animals, who do not wish to be stung, to let it alone.

The challenge to any Darwinian to quote any single instance of a flower whose colours, markings, or shape are inconsistent with the view that they are of advantage in deterring grazing and browsing animals is really too absurd, and the whole of the great Orchid family offers an eloquent if silent protest. What have the shape and movements of the pollinia to do with grazing and browsing animals? And if Orchids produce a spur to repel grazing animals, why do so many of them grow high up in the trees, far out of reach? And why do they so often bait the interior of the spur with a little delicious nectar? When an ordinary plant really sets about repelling grazing and browsing animals it generally adopts a more business-like process, and, judging by their habits, Orchids are not specially wanting in intelligence.

R. A. R.

MENDELISM AND HORTICULTURE.

A PAPER entitled "Mendel's Law of Heredity and its application to Horticulture," by C. C. Hurst, F.L.S., appears in the last issue of the *Journal of the Royal Horticultural Society* (xxxvi. pp. 22-52), and is illustrated by twelve figures of Orchids, to represent the phenomena of albinism.

With respect to albino Orchids it is remarked: "Recent results show that when true albino Orchids (*i.e.*, with no trace of purple sap colour) are crossed, the offspring may be all albinos, all coloured reversions, or both albino and coloured forms may be raised from the same capsule." Examples are given, most of which have already appeared in our pages. An attempt is made to classify the known albinos into two groups, termed "C" and "R" albinos, the letters being described as purely arbitrary symbols which conveniently serve to distinguish the complimentary colour factors which are stated to determine the presence or absence of sap colour. "If both the colour factors C and R are present, the sap is coloured; if either C or R is absent, the sap is colourless, and the plant is an albino. Consequently different albinos may carry different colour factors; some may be C albinos, carrying the C factor, while others may be R albinos, carrying the R factor."

Subdivisions of C and R albinos are also given, as pure and impure, purity being regarded as due to the double presence of the colour factor,

whether C or R (*i.e.*, when it is derived from both parents), and impurity to the single presence (*i.e.*, when derived from one parent only). For example, Cattleya Mossiæ Wageneri and C. Gaskelliana alba are regarded as R albinos, carrying a double presence of the R factor, but C. Schrœderæ alba and C. Warneri alba as C albinos, the former being pure, owing to the double presence of C, the latter impure, owing to its single presence only. We do not quite see how the latter result was arrived at, because "C. Gaskelliana alba × C. Warneri alba, raised by M. Peeters in 1904, produced the hybrid C. × Peetersiæ Myra, five of which were true albinos with pure white flowers and green leaves, and two were coloured, having lilac-purple flowers with purple margins to the leaves." In other words, both C and R were present, yet the sap was uncoloured in five of the seven seedlings. By the way, Paphiopedilum Lawrenceanum Hyeanum is described as "a pure R albino," yet when selfed by Mr. N. Cookson one plant is said to have reverted to an ordinary coloured form of P. Lawrenceanum.

Such knowledge is described as most useful to the Orchid breeder who wishes to raise new and improved forms of valuable albinos by crossing, hence for stud purposes the importance of some simple method of identification of individual albinos is urged. "Standard stud individuals of known germinal constitution would then have a definite value, and their propagation and distribution would then be more profitable to all concerned."

PAPHIOPEDILUM GLAUCOPHYLLUM HYBRIDS.

I HAVE read with interest your notes about the Paphiopedilum glaucophyllum hybrids sent by Dr. Hans Goldschmidt (p. 250). The late Mrs. Ida Brandt bought P. glaucophyllum in 1904, soon after its introduction, and I used the first expanded flowers for crossing. I am still in possession of my Record Books, and find that the hybrids sold to Dr. H. Goldschmidt are, No. 99, Paphiopedilum Mastersianum × glaucophyllum, fertilised 3-iv.-1905, sown 10-xi.-1905, germinated May, 1906, and No. 101, P. Curtisii crossed with mixed pollen of P. niveum and glaucophyllum (one anther of each being used), fertilised 5-vi.-1905, germinated end of May, 1906. Of these two crosses I got about 300 seedlings, which I sold to five or six different people, private and trade. M. Verdonck has received 140 of No. 99, and 150 of No. 101. Some of the smallest seedlings are still under my care, and have not yet flowered. As the seedlings are likely to find their way into many different collections I wish Dr. Goldschmidt would name those that have flowered with him in order to avoid duplicate naming in different collections.

E. MIETHE.

[Perhaps Dr. Goldschmidt can give the numbers attached to the seedlings which flowered. The above note explains the phrase "glaucophyllum niveum," which we did not understand.—ED.]

LÆLIA × BELLA.

THE annexed figure represents the striking hybrid, Lælia × Bella, which is mentioned at page 271, and is reproduced from a photograph kindly sent by Messrs. Charlesworth and Co., Haywards Heath. It was derived from L. purpurata crossed with the pollen of L. grandiflora (majalis), and shows

Fig. 16. LÆLIA × BELLA.

its origin very clearly. The sepals and petals are most like L. purpurata in shape, and rose-purple in colour, while the shape and details of the lip recall rather the pollen parent, the front lobe being rose-purple, and the throat paler, beautifully veined and dotted with dark purple, the dotting

extending almost to the margin of the front and side lobes. The hybrid was first recorded in 1907, being exhibited by Sir Trevor Lawrence at a meeting of the R.H.S. held on August 6th, under the name of L. × Purple May, when it was described as a distinct and pretty hybrid, having purplish lanceolate sepals, broader petals of similar colour, and the tube of the lip white with purple lines extending from the base to the front lobe, which is rich purple in colour (*O.R.*, xv. p. 274). A year later it was again exhibited under the name of L. × Bella (*l. c.*, xvi. p. 264), the name now adopted. Very few hybrids of L. grandiflora have yet been raised.

ORCHIDS AT HAYWARDS HEATH.

SPECULATION has probably been rife as to the character and parentage of the first Oncidioda, for seedlings from several crosses between Cochlioda and Oncidium are known to be in existence. One of them has now flowered, in the establishment of Messrs. Charlesworth and Co., at Haywards Heath. It was derived from Cochlioda Nœtzliana crossed with the pollen of Oncidium incurvum, and two of the seedlings are flowering. They are most like the Oncidium parent in habit, and in the erect spike, but the brilliant red colour is most like the Cochlioda parent. The first bloom was just beginning to open at the time of our visit, so we will leave further details for the present. An account of the establishment has already been given (*O.R.*, xvii. pp. 170-173, 206-208), so that we may at once mention a few of the numerous interesting features seen during a recent visit, beginning with the seedling department.

An enormous number of interesting experiments are in progress, always with some definite object in view, though, in a good many cases, the results cannot be foreseen. Certain fine hybrids, for example, have a rather weak constitution, and it is sought to unite them with strong-growing plants, in the hope of combining the best qualities of both parents. The brilliant uniform carmine colour of Odontioda Charlesworthii (Cochlioda Nœtzliana × Odontoglossum Harryanum) came as rather a surprise, but the plant is not a good grower, and it has been again put on to both the original parents. It has also been united with O. × armainvillierense xanthotes, O. × Lambeauianum, spotted crispums, and several other Odontoglossums, and these crosses should yield some very interesting results, for a lot of small seedlings are already in existence.

The raising of hybrid Odontoglossums and allied genera has become a very important business, and there are thousands of seedlings in every stage of existence. Messrs. Charlesworth are reducing it to a system. We entered a house containing the small seedlings, and found them at first placed several together in shallow pans, from which they are taken and potted singly as circumstances require. Shading, temperature, and moisture

are arranged so as to keep them growing vigorously. It is here that the seed is generally sown, on the compost of the growing plants, the conditions of this house being found most suitable for the germinating seeds. As soon as the tiny seedlings are large enough they are pricked off on to pans of prepared compost. This house was specially interesting, and the number of minute seedlings that could be detected by the aid of a lens was astonishing.

The second house is rather more heavily shaded, and is largely used for newly-potted plants, which need a little more care until they become established again, after which they are moved on as circumstances require. Other houses contain half-grown and older plants, up to the flowering stage. The plants generally are pictures of health and vigour, but Mr. Charlesworth remarked that a few were often found that seemed delicate and refused to grow, and these were thrown away. There may be the risk of throwing good varieties away, but unless such can be grown they are of little use. The aim is to raise good varieties that can be grown afterwards.

Among plants in bloom were Miltonioda Ajax (C. Nœtzliana × Miltonia Schrœderiana), having reddish brown sepals and petals and a four-lobed buff-yellow lip, and a plant of Miltonioda Harwoodii (C. Nœtzliana × Miltonia vexillaria), bearing a small but brilliantly-coloured flower. It is interesting to note that this hybrid has again been crossed on to M. vexillaria, and is bearing a capsule, from which something good is expected. There was also a very pretty rosy Odontioda derived from C. Nœtzliana × O. × Lambeauianum, which has been open for seven weeks. Odontoglossum Edwardii × Odontioda heatonensis has lilac-coloured flowers with some dark purple markings, but most resembles the seed parent. O. × Fascinator × crispum is a rosy flower with many round spots, such an one as might almost occur wild. The batch is just beginning to flower, and, being seven-eights crispum, should prove very instructive. O. × Fascinator × armainvillierense, a somewhat parallel cross, has yielded spotted forms with both white and yellow grounds, and varying much in other respects. O. triumphans × Lambeauianum has a yellow ground, with brown spots on the sepals and petals, and a white lip with a few spots, while O. Pescatorei × Lambeauianum has the Pescatorei shape and ground colour, with very regular spotting. Both these have one-eighth of O. Harryanum in their composition, and are very good growers. O. Harryanum and O. Pescatorei seem to give good constitutions to their hybrids, even when present in only a very small percentage, and this fact is being utilised in the selection of parents. We noted a seedling form of O. crispum with remarkably broad overlapping segments, which will be utilised. O. crispum × Lambeauianum shows a great amount of variation, one form having the greater part of the segments covered with a great plum-coloured blotch, and the tips lilac-

purple, while the base of the lip is very dark purple, and the apex white. Many plants of this cross and of seedling O. crispum were in bloom. We may also mention a very white form of O. × percultum, most like O. Pescatorei, and an immense form of O. × Rolfeæ which is being used as a parent, two capsules being partly formed.

Seedlings of numerous interesting crosses were pointed out. A batch of seedlings from Miltonia Warscewiczii var. Weltoni, crossed with a good spotted Odontoglossum crispum, had very flat bulbs, and were growing vigorously. They will be forms of Odontonia Lairesseæ. Seedlings of Odontioda Bohnhoffiæ × Odontoglossum × Ossulstoni were growing well. Nice plants of Odontoglossum × Ceres (Rossii × Rolfeæ), and a couple of seedlings from O. maculatum and O. × Wiganianum were pointed out, with others from O. Uroskinneri × Harryanum, O. × armainvillierense × Rolfeæ, and a lot of seedlings of O. crispum. A batch of Oncidium × hybridum (trigrinum × lamelligerum), the first artificially raised Oncidium see p. 8), was also noted, and the list might be greatly prolonged.

A house is set apart for select varieties, and here we saw the beautiful Odontoglossum crispum xanthotes Snow Queen throwing up a very strong spike, O. c. virginale Jules Hye with a smaller spike, an imported O. crispum with an orange-coloured disc to the lip and very few spots, O. Pescatorei Charlesworthii, a very good parent, with a fine spike, the richly-coloured O. Uroskinneri incarnatum, a good O. × armainvillierense with six side branches and an aggregate of twenty-nine white flowers, with clusters of purple spots on the segments, some good spotted seedling forms of O. crispum, &c. The plants here were mostly being grown on.

The Cattleya houses are filled with thousands of seedlings in every stage, and were equally interesting. The seeds are sown on canvas strained over balls of sphagnum moss and inserted into pots, while a little finely-chopped compost is inserted into the cavity at the sides, to prevent the seeds from slipping down and getting lost. Many interesting crosses were pointed out, but we cannot enumerate them, and the flowering plants were mostly in the main range, which we shall come to presently.

Some interesting experiments are being carried on, one of them being an attempt to obtain a race of large yellow hybrids, a type much wanted. One of these experiments is Læliocattleya Cappei crossed with Cattleya × Lord Rothschild, and the result again crossed with C. Dowiana aurea. The problem is being attacked other ways, and the result will probably be reached in time, though the difficulty is that so many of the C. Dowiana aurea hybrids revert to purple.

We also noted a lot of choice Cypripedium hybrids in every stage, some of them showing for flower. Although so many have been raised there is plenty of room for improvement, and a severe selection of parents is

practised. As with the Odontoglossums, the seeds are sown on the compost of the parent plants, or on that of growing seedlings, as no success has been obtained by making up pots of new compost, as is so successfully practised with Cattleyas and allied genera. Some interesting crosses from C. × Niobe and other C. Fairrieanum hybrids were pointed out, also from C. insigne Harefield Hall var.

In the main range a lot of interesting things were in bloom, a few of which were noted. In the first house entered was a good plant of Odontoglossum Harryanum, rather lighter in colour than the old type, several O. hastilabium and Uroskinneri, with a seedling from O. cirrhosum × Uroskinneri in spike, also Brassia maculata and two B. longissima, Oncidium longipes and trulliferum, the latter in spike, Trichosma suavis, Angræcum falcatum, Maxillaria tenuifolia, venusta and marginata, a remarkable plant of Cryptophoranthus Dayanus literally crowded with flowers, over 250 in number, Polystachya bracteosa, a good Nanodes Medusæ, a fine form of Miltonia Warscewiczii, M. vexillaria superba, a lot of M. × Hyeana, several plants of the rare Zygopetalum Burkei, some well-flowered Trichopilia Turialvæ, Warscewiczella marginata, Schlimmia trifida in bud, &c.; while among cool-growing subjects were Promenæa stapelioides and P. xanthina, Pleurothallis maculata, the remarkable P. ornata, with its club-shaped marginal appendages to the sepals, numerous Masdevallias, including gemmata, trydactylites, velifera, Chestertoni, calura, Reichenbachiana, and various others.

A good sprinkling of flowers was noticed among the Cypripediums, including C. Dayanum, superbiens, Curtisii, Lawrenceanum, &c., also C. × Rossetti, raised in the collection and quite typical in character. A capsule of C. Charlesworthii Bromilowiæ × bellatulum album was pointed out, and it is interesting to speculate as to what the result will be like.

An Odontoglossum house contained a lot of interesting things in bloom, and it was curious to see among a number of O. × Rolfeæ some that had the branched inflorescence and numerous flowers of O. Pescatorei, and others the simple spikes, and fewer larger flowers of O. Harryanum. A similar character was noticed in O. × armainvillierense, some plants having simple crispum-like spikes, while others were much branched, one of the latter having as many as twelve side branches, and the flowers approached O. Pescatorei in character. One plant had crispum-like flowers without spots, another was very regularly spotted, and it was pointed out that O. Pescatorei × O. crispum Graireanum gave both white and blotched forms. We noted also good examples of O. × Cooksoni, O. × hibernicum, O. × Hallio-Adrianæ, fairly intermediate in character, O. × Phœbe, which grows larger than either parent, one having a spike over four feet high, O. × spectabile with a very fine spike, also O. Thompsonianum and O. × elegans in

spike. There were plants of Odontioda Bohnhoffiæ and O. Lutetia in bloom, with a number of O. Bradshawiæ and O. Devossiana in spike.

Suspended in the next house were plants of the new Oncidium Claesii growing with great vigour, with some of the curious O. zebrinum, which creeps over the bushes in a wild state, also one of the rare O. corynephorum, O. sphacelatum with three spikes, the rare Miltonia lævis with a large panicle, Odontoglossum bictoniense album, a yellow O. crispum, O. crocidipterum and the yellow O. Lindenii in spike, Masdevallia Schlimii, with a lot of M. ignea and coccinea. A number of Sobralias were in bloom, including S. macrantha alba, xantholeuca, × Veitchii, × Amesiana, and Colmaniæ, making a good display. A capsule of Cymbidium Devonianum × insigne should yield a very curious hybrid.

The next house contained the rare Houlletia Brocklehurstiana in bloom, examples of Anguloa Clowesii and Ruckeri, a lot of autumn-blooming Epidendrum vitellinum, E. prismatocarpum, E. pristes, Chysis lævis, most of the flowers being without lips, Oncidium tigrinum, just beginning to flower, and a strong plant of Cœlia macrostachya, while in an adjacent Warm house were examples of Dendrobium Phalænopsis and D. Sanderæ, the striking Schombocattleya spiralis, and the distinct Lælia × Bella (purpurata × grandiflora), which is figured on page 265.

It was particularly interesting to see in the next Warm house a female flower of both Cycnoches densiflorum and chlorochilon. Males of the latter were borne on separate plants, and there were male spikes of C. maculatum, also of Catasetum maculatum and C. Tracyanum, a fine inflorescence of Mormodes luxatum, Oncidium Papilio and Kramerianum, and the fragrant Miltonia Roezlii alba.

In a Cool house were plants of the pretty little Lælia monophylla, one of them bearing a couple of two-flowered spikes, a quite unusual character. Here also was a hybrid from Cochlioda Nœtzliana × Odontoglossum cordatum, having red flowers with a diverging free lip, the handsome Disa × Luna, Cochlioda vulcanica, sanguinea and Nœtzliana, Miltonia Regnelii, the distinct Satyrium sphærocarpum, with examples of Oncidium sarcodes, curtum, prætextum, and Wentworthianum.

In the Cattleya houses a few things were in bloom, among which we noted the handsome C. Gaskelliana and C. G. alba, C. × lucida, C. × Adula, a few C. Warscewiczii, C. Loddigesii, Brassocattleya Veitchii Queen Alexandra, B.-c. Hyeæ, B.-c. Maroni, some good Læliocattleya callistoglossa, Dominiana, Berthe Fournier, Nysa, eximia, a richly-coloured hybrid from L.-c. Issy × C. × Hardyana, and others, Brassolælia Veitchii, Lælia xanthina, the handsome Sophrolælia Marathon, &c. A very large number of sheaths were showing, and a fine display is anticipated during the coming autumn. We also noted two very fine dark Vanda

cœrulea in bloom, one of them having a side branch on one inflorescence and two on the other, a character we do not remember to have seen before, three plants of the handsome V. × Miss Joaquim in bloom, Stanhopea tigrina, and Gongora leucochila.

In the Phalænopsis house we noted a good Eulophia guineensis, Phaius amboinensis, the pretty blush-white Dendrobium Phalænopsis Rothschildianum, and a very fine plant of Aerides Lawrenceanum with four spikes, these being twin spikes from two of the leaf axils, a remarkable character. Phalænopsis amabilis was in flower, and the plants of P. Schilleriana and P. Aphrodite were growing well, and promise a fine display of bloom at the proper season.

But we must bring our notes to a close. They might easily have been doubled, and only by the severest repression have they been kept within reasonable limits, so extensive is the establishment and so numerous the interesting features it contains. Order and cleanliness are everywhere apparent, and the general health of the plants is excellent. Seedling raising is one of the principal features, and the extent in which it is being carried on gives an excellent opportunity for selection. Messrs. Charlesworth have already a brilliant record in this department, and there are indications of numerous accessions to the list in the near future.

EPIPOGON GMELINII, A BRITISH ORCHID.

EPIPOGON GMELINII is a remarkable saprophytic Orchid which has only been found once in England. The discovery was announced in 1854 (*Hook. Journ. Bot.*, vi. p. 318), as follows: "We have just received the welcome intelligence (accompanied by recent specimens) that the very curious aphyllous Orchidaceous plant, Epipogium Gmelini, Rich., . . . has been added to the number of our British native plants. The discovery was communicated to me on the 9th of this month (September) by the Rev. W. Anderton Smith, of Tedstone, from the Rectory, Delamere, Bromyard: 'I am sure it will interest you to know that, a few weeks since, Mrs. Anderton Smith found a specimen of the Epipogium Gmelini, the first, I am told, that has been found in England. For some time we looked in vain for other specimens; but on the 23rd ult., I was fortunate in detecting a considerable mass of it. All were found at the foot of a very steep bank, close to a brook; the soil very wet and stiff. As the banks are very much trampled on at present (timber and faggots being drawn along), I decided on digging it up, and planting it in a similar spot in our grounds.' We trust, with the assistance of a drawing made by Mrs. Anderton Smith, from the recent specimens, to give an accurate coloured figure in the *Botanical Magazine* of this rarity." The figure appeared (t. 4821), and we believe stands to-day as the only voucher for a very interesting record.

OBITUARY.

H. A. TRACY.—We regret to hear of the death of Mr. Henry Amos Tracy, of the Orchid Nursery, Amyand Park Road, Twickenham, which took place on August 18th last, after a paralytic seizure, at the age of sixty years. Mr. Tracy had been in business at Twickenham for many years, and the *Gardeners' Chronicle* describes him as "one of the first to import and offer at low prices Odontoglossum crispum and other popular Orchids, Lilium auratum and other Japanese plants, placing them within the reach of amateurs of small means." He had enjoyed good health until two or three years ago, when he had an attack which affected his sight and hearing. He appeared to be gradually recovering, and was present at the last meeting of the Orchid Committee of the R.H.S., of which he had been a member for some years. On Thursday evening, August 18th, at about 7 o'clock, he was stricken with paralysis, and passed away about four hours later without recovering consciousness. During the many years he had been in business, many new and rare plants passed through his hands, one of the most striking being Cymbidium Tracyanum, which was named after him. It appeared as a single plant among a lot of imported C. Lowianum, and was not recognised until it flowered. It received a First-class Certificate from the R.H.S. on December 9th, 1890, and was afterwards sold by auction at Messrs. Protheroe and Morris' rooms for 75 guineas, being purchased by the late Baron Schröder. His name is also commemorated in Cypripedium × Tracyanum, a hybrid from C. aureum × Leeanum giganteum, and Catasetum Tracyanum, a Peruvian species which was only exhibited a few weeks ago. The business will be carried on under the management of Mr. Sydney Flory, a nephew, who has been associated with the firm since boyhood.

JAMES MCBEAN.—The death of Mr. James McBean, senior partner of the firm of Messrs. J. and A. A. McBean, of Cooksbridge, near Lewes, took place on Sunday, August 21st, after a long period of failing health. The deceased was born on October 22nd, 1840, and many years ago founded the Nursery at Cooksbridge, where for a long period the culture of Odontoglossum crispum for the supply of cut blooms has been carried on with great success, the plant becoming quite a speciality of the firm. The white forms of Laelia anceps and various other Orchids were also very successfully grown, and of late years the raising of seedling Odontoglossums and other Orchids, has been taken up very successfully. For some years Mr. McBean has suffered from heart trouble, and after taking his son, Mr. A. A. McBean, who had long been associated with him in the work, into partnership, he relinquished the management, and on Sunday, August 21st, he passed peacefully away in his sleep, in his seventieth year.

PAPHIOPEDILUM CURTISII.

THE annexed figure represents the fine specimen of Paphiopedilum Curtisii, from the collection of Dr. Miles Johnston, which was mentioned at page 228 of our last issue, the photograph being sent to illustrate the results of the method of culture there described. The result leaves little to be desired in the matter of vigour and floriferousness. Fourteen flowers from a plant in a six-inch pot, which, two years before, had only four growths, is

Fig. 17. PAPHIOPEDILUM CURTISII.

sufficient proof of excellent culture. The figure, it may be added, is about one-fifth natural size. From the strongly tessellated leaves, we should say that the plant belongs to the new type of P. Curtisii, which, we understand, came from a new locality, though whether it represents a geographical variety, or what, we have never been able to clear up. The species was originally introduced from Sumatra by Messrs. James Veitch

and Sons, in 1882, through their collector, Curtis, who found it at some distance from Pahang, at an elevation of 3,000 to 4,000 feet, on the great mountain range which extends almost throughout the length of the island. It was shortly afterwards described by Reichenbach, under the name of Cypripedium Curtisii (*Gard. Chron.*, 1883, ii. p. 8), and figured in the *Orchid Album* (iii. p. t. 122). The species is allied to P. ciliolare and P. superbiens.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By W. C. Price, Oakdene, West Didsbury.

General Remarks.—All secondary shading that has been employed during the summer should be removed by the middle of the month. The down spouts leading into the tanks should be firmly stopped up before commencing, and the houses thoroughly washed down outside. The spouting should also be well cleaned out after washing down, leaving the plug in until this is done, so that no sediment gets into the tank. The inside of the houses should be washed down as soon afterwards as possible, and all pots and staging thoroughly cleaned. When re-staging, the plants should be placed in their winter quarters, and got well up to the glass, but not too close, as they would suffer more if by any means a fall in the temperature occurred during the winter. All bare walls should be well scrubbed, and lime-washed with new lime, especially under the stages, as it helps to keep the slugs and other insect pests from crawling up, also to keep the houses sweet.

Slugs and Cockroaches, now that the cold nights are coming on, will make their presence felt, and destroy a lot of flowers and spikes unless kept down. Slugs may easily be trapped if lettuce leaves or bran is laid down in places and examined night and morning. Cockroaches may be cleared by putting down at frequent intervals, on pieces of glass, a small portion of arsenic and honey mixture. The proportions should be two ounces of arsenic to half a pound of honey, and any chemist will mix it for you if you state the purpose for which it is required.

Shading.—Now that the days are shortening and the sun waning in power, the blinds can be left up later in the morning, and pulled up earlier in the afternoon. Make the utmost possible use of the sun to ripen things up without overdoing it. All plants that have finished their growths should be placed together in their respective houses, where they can be treated accordingly, so that they are not tempted to make a second growth. Keep the fires well in hand, so that they can be used at once if wanted, as a sudden check now would do a lot of harm.

Damping.—This operation will not be required so frequently now, though the houses should not be neglected. Keep a nice buoyant

atmosphere, without having the houses too close or damp. If the ventilating is carefully done a genial condition can easily be kept.

SPRAYING.—Spray the plants overhead as often as can be done with safety, bearing in mind the time of year. It can safely be done on all bright days, but not quite so late in the afternoon as during the preceding month. The nights now get cool and moist, so that it is not required for night moisture, and you are apt to get too great a condensation of moisture upon the plants in case of a fall in temperature.

TEMPERATURES for the month should range as nearly as possible as follows:—

Cypripedium house,	day, 70° to 75°;	night, 70°;	morning, 65°.
Cattleya house,	day, 65° to 70°;	night, 65°;	morning, 60°.
Intermediate house,	day, 62° to 68°;	night, 62°;	morning, 58°.
Odontoglossum house,	day, 60° to 62°;	night, 58°;	morning, 56°.

CATTLEYAS.—The beautiful C. Dowiana aurea will be in flower this month, and where a good number of them are grown a succession of flower will be kept up for several weeks. After the flowers are off they require very careful treatment right through the winter. They should be very carefully watered, as an overdose during winter is often fatal to them, but they should not be allowed to get dust dry. Some growers pot them as soon as new roots are seen after flowering, but I prefer to pot them when new roots are pushing early in the year, as they then have the best part of the season in which to re-establish themselves. C. Lueddemanniana and C. Eldorado will also flower during the month, and require similar treatment. C. Harrisonæ, Loddigesii, Leopoldi, bicolor, and granulosa will be making a good show towards the end of the month. The Cattleya house should be fumigated a time or two while they are in bud, to make sure there are no thrips about, which are very partial to these Cattleya flowers and soon spoil them. C. Gaskelliana will have finished flowering, and should be given a good rest until the new growths commence to push next spring.

CYPRIPEDIUMS.—C. Charlesworthii will be making a good show this month, where they are grown in quantity, and a good batch is worth having, for there is a large range of variety among them. It is a rather small and slow growing species, but is very free flowering when properly grown. I find that it does best when grown in a moist and shady position at the cool end of the Intermediate house, although it will grow in the Cool house, but not nearly so well. They are especially fond of moisture during the growing season, and should be kept well syringed. After flowering the plants will not be very active until February, therefore they should be kept much drier during the winter months, but should not be allowed to get quite dry. When cleaning them—either the pots or plants—great care

should be taken so that the leaves do not get broken, as they are very brittle, and if knocked or lifted too high the main rib is broken, causing the loss of the leaf. There are also many varieties of C. insigne now pushing up, and these should have neat sticks placed to them, and be tied up neatly as they require it. Tie them rather loosely, so that they are not impeded. Do not let them hang about until the flower is opening, for a straight stem improves the appearance of the flower, both when it is on the plant and when cut.

DENDROBIUMS.—D. Phalænopsis Schrœderianum, D. Statterianum, and D. bigibbum will now be nearly finished growing for the season, and many of the most forward are already in flower or spike. Everything possible should be done to get them to develop their flowers before there is any chance of fog claiming them, as the slightest fog causes the loss of flower or imperfect development. A fair amount of water should be given them until the spikes are off, and then a good long rest should commence, during which, if they are placed in a Cattleya house or a similar structure, they will require no water at the roots. The temperature should not be allowed to drop below 58° at any time during the resting season. The most forward of the splendid white-flowering D. formosum giganteum are now in bud, and any that are not so forward should have every encouragement to make up, and have a plentiful supply of water until the flowers are off, when they should be treated the same as D. Phalænopsis, but should be given water at the roots as soon as the bulbs show any sign of shrivelling. Give full sunlight to all Dendrobiums, with a sufficient supply of ventilation, so that they may be fully ripened up, and so secure a good show of flower for their season.

HABENARIAS.—H. carnea, H. pusilla (militaris), and H. Suzannæ are very conspicuous now, and they are well worth growing. They should be given a complete rest after the flowering season is over, as they are deciduous. A suitable position for them during the winter is a light position on a shelf, either at the cool end of the Cattleya house, or the warm end of the Intermediate house. They will commence to grow early in March, when they may be repotted. Until then they should receive no water, as the tubers easily decay if the soil is at all moist during the winter.

MILTONIAS.—M. vexillaria and its many varieties will be fit for repotting, using the compost as recommended in the June Calendar. They should be very carefully watered during the coming season until the days begin to lengthen again. They should now be removed from the Odontoglossum house, where they have been grown during the summer months, and placed in the Intermediate house for the winter. In the Warm house, M. spectabilis, with its varieties Moreliana and atrorubens, will be in flower during this month. After the flowers are off only sufficient water to keep

them from shrivelling should be given till signs of activity are seen. In the Cypripedium house, Miltonia Roezlii will also be in flower, and although the supply of water should be reduced through the dull season, they should never be allowed to get dry. M. Phalænopsis, also in the Warm house, may now be repotted. The two latter species should be carefully watched for signs of red spider, and carefully dipped in a solution of insecticide as soon as traces of them are seen.

ODONTOGLOSSUMS.—Although I have recommended earlier in the season to repot any plants of O. crispum that required it, and were in a proper condition to do so, it is during this month that the bulk of them require to be done. The compost recommended in the January Calendar, or a mixture of one-third each of polypodium and Osmunda fibres and sphagnum moss, well mixed together, should be used. Shade and water carefully until they are well rooted again. If there are varieties that it is desirable to increase, the back bulbs that are taken off when potting should be carefully labelled and placed together in a box or pan, with a little sphagnum moss, and placed in a cool, moist corner, where they will throw up new growths in due course. They should not be watered, as the moisture of the house will be sufficient for them until they are potted up in the usual way. Another and quicker plan to increase the stock is to sever the leading bulb with a sharp knife when the young growth is about two inches high, and carefully work it out of the pot with as many roots attached to it as possible. Then pot it up and water carefully, leaving the back portion of the plant in the original pot without disturbing it, where it will soon make a new lead.

PLEIONES.—P. maculata and P. præcox will now have about completed their growths for the season, and the leaves will soon die away. As soon as signs of this are seen the supply of water must be reduced, only sufficient to help them carry their flowers and prevent shrivelling being given. P. humilis is only commencing to make up its growths, and should have a good supply of water. They should be repotted soon after flowering, in well drained pans, in a compost consisting of one-third each of fibrous peat, sphagnum moss, and oak leaves, with the addition of a good sprinkling of silver sand. They should be suspended from the roof of a Warm house, where they can have abundance of light, air, and moisture. After repotting they must be very carefully watered until well rooted.

VANDAS.—Vandas, Saccolabiums, Aërides, Angræcums, and Phalænopses now require less water at the roots and in the atmosphere. More light should now be admitted, and as much fresh air as can safely be given, to harden the young foliage, so that they may be able to withstand any attack of spot later on. But excess of either direct sunlight or draught must be guarded against, or a serious loss of foliage will result.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 2nd, when a few interesting Orchids were sent, and the Orchid Committee gave one Award of Merit, a Botanical Certificate, and a Cultural Commendation. The Hall, however, was nearly deserted, and the plants were for the most part being packed up soon after the Committee meeting was over. We think it was a mistake to hold a meeting on the day after an August Bank holiday, especially when two other meetings fell due during the month.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a Cultural Commendation for a magnificent specimen of Oncidium incurvum, bearing twenty-seven tall inflorescences of white and purple flowers, and a Botanical Certificate for Dendrobium Bullenianum, a pretty Philippine species, bearing rounded heads of reddish orange flowers, striped with purple.

Lt.-Col. Sir G. L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received an Award of Merit for a plant called Cattleya Warscewiczii var. Othello, but which was evidently a form of C. × Hardyana, as it had more of the C. Dowiana shape, and less spreading petals, the latter being rosy purple in colour, while the lip was intense purple-crimson, with some deep yellow on the sides of the throat and some yellow veining at the base.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent the elegant Odontoglossum × Nerissa, in which the characters of O. nævium and O. crispum are well combined, a sulphur-yellow form of O. × armainvillierense (Pescatorei × crispum aureum rosefieldiense), with O. × Astarte and O. × Amneris, all raised in the collection.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), showed Odontioda Goodsonæ var. Herbertii, a good dark scarlet form, and Odontoglossum crispum Herbertii, a well-spotted form.

J. S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench), sent the new hybrid Odontoglossum × Mauritania (O. sceptrum × Rolfeæ), which is described on page 286.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), sent Masdevallia coccinea Gravesiæ, the so-called white form, in which, however, the flowers have a distinct buff-yellow tinge.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent Cattleya × Pittiana, C. Gaskelliana alba, Læliocattleya Lambeauiana rubra, and Brassocattleya Dante (C. Grossii × B. Digbyana).

Messrs. J. & A. A. McBean, Cooksbridge, sent a fine form of Cattleya × Germania, with an inflorescence of eleven flowers on the spike.

M. Maurice Mertens, Ghent, sent an Odontioda and about six good blotched hybrid Odontoglossums.

Mr. H. A. Tracy, Amyand Park Road, Twickenham, sent Catasetum Tracyanum, a distinct greenish white species from Peru.

At the meeting held on August 16th there was a much larger display, and the awards consisted of a Lindley and three other medals, one First-class Certificate, one Award of Merit, five Botanical Certificates, and one Cultural Commendation.

Mrs. Bischoffscheim, Warren House, Stanmore (gr. Mr. Taylor), staged a magnificent group of over 100 finely-grown plants of Disa grandiflora, ranging from two to four feet high, and varying much in colour. Two of them bore seven flowers, and one as many as eight. They formed a most brilliant sight, and a Silver-gilt Lindley Medal was deservedly awarded for such excellent culture.

Lt.-Col. Sir G. L. Holford, Westonbirt (gr. Mr. Alexander), staged a very beautiful group, to which a Silver-gilt Flora Medal was awarded. It consisted of seven finely-grown plants of Vanda cœrulea, two of them with two spikes, and the best bearing sixteen flowers, all very richly coloured, with a ground-work of twelve good plants of Cypripedium × Maudiæ, raised in the collection, and bearing thirty-one flowers, together with a plant of the brilliantly-coloured Læliocattleya Colmaniana magnifica. A First-class Certificate was given to Vanda cœrulea, Westonbirt var., a remarkably large and richly-coloured form, with reticulated deep blue veining on the sepals and petals, and a nearly indigo-blue lip.

Sir Trevor Lawrence, Bart., Burford (gr. Mr. White), sent the richly-coloured Cypripedium × Martin Cahuzac (Io × Charlesworthii), Dendrobium ciliatum, and the three following, each of which gained a Botanical Certificate. Polystachya paniculata (Rolfe) is a Tropical African species, bearing a panicle of small reddish buff flowers, with a few darker stripes. Theodorea gomezoides is a small Brazilian Orchid belonging to the Oncidieæ, and bearing racemes of greenish flowers with a white lip. Bulbophyllum exaltatum is a Brazilian species bearing longish spikes of light green sepals dotted with brown, and a blackish purple, much-fringed lip.

Mrs. Temple, Leyswood, Groomsbridge (gr. Mr. Bristow), exhibited a fine plant of Cypripedium × Wiertzianum, bearing three racemes and an aggregate of eleven flowers, a Cultural Commendation being awarded.

Mrs. Norman C. Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cypripedium × Chapmaniæ (Calypso × Fairrieanum), C. × Sybil (Francesiæ × Fairrieanum), Odontoglossum Pescatorei Cookson's var., a pretty white form with a round purple spot on the petals, and three or four others on the sepals and lip, and Cattleya × oakwoodiensis (Warneri ×

Hardyana), most like the latter in shape, and having rosy purple sepals and petals, and a darker lip, with a little yellow veining in the throat.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent a good form of Odontoglossum × Queen Alexandra, and O. × Thwaitesiæ (Harryanum × armainvillierense), a dark, well-blotched hybrid.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a very interesting little group, including two diverse forms of Cattleya × Crashleyi, the handsome Læliocattleya St. Gothard, Sophrolælia heatonensis, Sophrocatlælia De Vere Beauclerk, Odontoglossum Uroskinneri album, O. × Goodsonæ (Uroskinneri × Pescatorei Charlesworthii), O. × Solon, O. × percultum, O. Rolfeæ × amabile, white, with purple blotches on all the segments, and the petals toothed, &c.

Messrs. Stuart Low & Co., Bush Hill Park, staged a fine group, to which a Silver Flora Medal was awarded. It contained some good Cattleyas, Odontoglossums, and other Orchids, noteworthy among them being a dark form of Bollea Lalindei, a very fine Cattleya × Hardyana, C. Gaskelliana, × Atalanta, × Minucia, × Vesta, granulosa, × Imperator, and C. Lueddemanniana × Hardyana, fairly intermediate in character, Cypripedium Lawrenceanum Hyeanum, Godefroyæ leucochilum, × Maudiæ, × Pollettianum, the richly-coloured Dendrobium × chessingtonense, Odontoglossum Uroskinneri album, forms of O. crispum, O. Wallisii, some good Oncidium concolor, Wentworthianum, flexuosum, Warscewiczii, and pulvinatum, Catasetum callosum, the rare Sigmatostalix Eliæ, Læliocattleya callistoglossa and epicasta, Listrostachys arcuata, several interesting Masdevallias, &c. Botanical Certificates were given to Stanhopea saccata and Cyrtopodium Andersonianum.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including a very pretty form of Cattleya × suavior (intermedia alba × Mendelii), having pale blush flowers with a lilac margin to the lip, C. superba × Hardyana, a richly-coloured hybrid, most like the former, C. × fulvescens, × Atalanta, and × Vulcan, some good Vanda cœrulea, and the distinct V. × Maronæ (teres × suavis), a well-bloomed Dendrobium hercoglossum and a few D. Phalænopsis, Masdevallia muscosa and xipheres, Cymbidium chlorochilon, Maxillaria venusta, Peristeria elata, Brassolælia Jessopi, Odontoglossum × Rolfeæ, O. Thompsonianum, Sophrocattleya Chamberlainiana, Læliocattleya callistoglossa, bletchleyensis, and Berthe Fournieri, Cypripedium Stonei × Charlesworthii, with a two-flowered scape, and the dorsal sepal white, with a purple base and some purple veining above, the petals diverging, somewhat elongated, and greenish with brown veining, and the lip brown in front, C. × Rossetti, × Olivia, × Transvaal, &c.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent an interesting

group, including a fine plant of Cypripedium × I'Ansoni, with a strong three-flowered spike, C. × Mary Beatrice, C. × Juno, the handsome Brassocattleya Leemanniæ, Læliocattleya Nysa superba, Cattleya × Atalanta, and two good forms of C. × Adula. An Award of Merit was given to Oncidium × Mantinii Lowii, a handsome natural hybrid, which is said to have appeared in an importation of O. concolor. The spike bore eight large and handsome yellow flowers, with very light brown Forbesii-like markings and crest, and spotted column wings.

Messrs. Charlesworth & Co., Haywards Heath, sent a small, choice group, including the handsome Vanda × Miss Joaquim, Schlimmia trifida, with a spike of six white flowers. Aërides Lawrenceæ with four fine racemes, the striking Mormodes luxatum punctatum, Eulophia guineensis, the handsome Lælia × Bella, which is figured on page 265, Miltonia vexillaria superba, the striking Cœlia macrostachya, Phaius Zollingeri, a good Houlletia Brocklehurstiana, Anguloa Ruckeri, Oncidium trulliferum, Stanhopea oculata, and a plant of Cryptophoranthus Dayanus, literally crowded with flowers.

Messrs. Jones, Howes & Co., Elmdon Nursery, Kenilworth, sent a good plant of Cattleya × O'Brieniana alba, with two flowers.

Messrs. J. & A. A. McBean, Cooksbridge, sent a small group, including two nice plants of Odontioda Graireana (C. Nœtzliana × O. Rossii), with three and four flowers, the sepals and petals tinted with red, and the lip rather large and whitish, O. Bohnhoffiæ, Læliocattleya callistoglossa, Cattleya Gaskelliana and Warscewiczii, Odontoglossum × armainvillierense xanthotes, O. × cristatellum, a form of O. × Lambeauianum, and a few good O. crispum.

The following was accidentally omitted from our report of the Holland House Show (pp. 243-246) :—

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a choice little group, including a number of good Cypripedium callosum Sanderæ with over 30 flowers, C. Lawrenceanum Hyeanum, C. × Ballantinei, a fine Odontioda Charlesworthii with a rather orange-coloured lip, three fine Cattleya Mendelii with the pure white C. M. Regina, C. Gaskelliana alba, C. Eldorado Wallisii, C. Mossiæ Wageneri and two other white forms of C. Mossiæ with coloured lips, Cœlogyne pandurata, and other interesting things.

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.

THE last meeting of the 1909-1910 session was held at the Coal Exchange, Manchester, on June 2nd, when a fine display of plants was brought together. Committee present: Messrs. E. Ashworth (Chairman), R.

Ashworth, Thorp, Cowan, Ward, Arthur, Shill, Warburton, Sander, Keeling, Holmes, Cypher, Smith, Parker and Weathers (Hon. Sec.).

FIRST-CLASS CERTIFICATES were awarded to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for Odontoglossum crispum var. Franz Masareel and O. c. var. Noble.

AWARDS OF MERIT were awarded to R. le Doux, Esq., West Derby (gr. Mr. Fletcher), for Odontioda Bradshawiæ, Le Doux's var.; to Col. Rutherford, Beardwood, Blackburn (gr. Mr. Lupton), for Odontoglossum × percultum, Beardwood var., and O. crispum var. Cymre; to H. J. Craven, Esq., Keighley (gr Mr. Corney), for Odontoglossum × Aireworth, var. Haggasiana; to Messrs. Sander and Sons, for Brassia brachiata var. maxima; to J. T. Clifton, Esq., Lytham (gr. Mr. Float), for Acineta colossa, Phaius × Phœbus, Phalænopsis violacea, Clifton's var., Læliocattleya × Canhamiana var. Rex, St. Anne's var. and Cattleya Mendelii King George V., and to J. McCartney, Esq., Bolton (gr. Mr. Holmes), for Læliocattleya × Heyense (Mossiæ × cinnabarina).

MEDAL AWARDS.

A. Warburton, Esq., Silver-gilt Medal for Group; J. T. Clifton, Esq., Gold Medal for Group, and Silver-gilt Medal for Cattleyas, &c.; Messrs. Charlesworth & Co., Silver Medal for Group; Stuart Low & Co., Silver Medal for Group; J. and A. A. McBean, Silver Medal for Group; J. McCartney, Esq., Silver-gilt Medal for Cattleyas, &c.; Mrs. Wood, Silver-gilt Medal, for General Group.

VOTES OF THANKS.

Messrs. Rutherford, Shackleton, Robson, Sander, Low, Birchenall, Liverpool Orchid Co., Keeling, and Lee.

The results of the Competitions for 1909-1910 were given on page 222, but the following Awards have also been made:—

A Gold Medal was awarded to J. T. Clifton, Esq., Lytham, for the greatest number of points gained during the year.

C. Parker, Esq., Ashton-on-Ribble, near Preston, a Gold Medal for exhibits made by "Small Amateurs."

H. Arthur, Esq., Blackburn, a Silver-gilt Medal in the same section.

The opening meeting of the 1910-1911 session was held at the Coal Exchange, Manchester, on June 23rd last, when there was a good display of plants. The members of the Committee present were: Messrs. E. Ashworth (Chairman), R. Ashworth, H. Arthur, F. W. Ashton, J. C. Cowan, Rev. J. Crombleholme, W. Holmes, A. J. Keeling, C. Parker, H. H. Smith, F. K. Sander, H. Thorp, A. Warburton, and P. Weathers (Hon. Sec.).

Col. J. Rutherford, Blackburn (gr. Mr. Lupton), received a Silver-gilt,

Medal for a good group, in which some choice Cattleyas were conspicuous. Awards of Merit were given to C. Mendelii var. Duchess of York, and to Odontoglossum × amabile var. Rose Drop.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), received a Silver Medal for a group of well-grown and showy plants. Odontoglossum × Lambeauianum var. cœrulescens was awarded a First-class Certificate.

W. Thompson, Esq., Stone (gr. Mr. Stevens), was awarded a Silver Medal for a good group of Odontoglossums and Odontiodas, and Awards of Merit for Odontoglossum crispum White Swan and O. × eximium var. Centenary.

Mrs. A. K. Wood, Glossop (gr. Mr. Gould), sent a fine group, including Cattleyas in great variety, Odontoglossums, a fine Vanda cœrulea, and numerous others. An Award of Merit was given to Phaius Sanderianus, and a Cultural Certificate to a well-grown plant of Odontoglossum hastilabium.

J. McCartney, Esq., Bolton (gr. Mr. Holmes), received an Award of Merit for Cattleya Mendelii var. General Botha.

R. le Doux, Esq., West Derby, Liverpool (gr. Mr. Fletcher), sent Cattleya Mossiæ alba, Le Doux's var., and Odontioda Bradshawiæ, Le Doux's var.

A. Warburton. Esq., Haslingden (gr. Mr. Dalgleish), sent a few good Odontoglossums, including O. crispum var. Triumph, O. c. Sultan of Zanzibar, and O. c. Queen of the North.

A few interesting exhibits were also sent by Messrs. J. Birchenall, W. Bolton, Keeling & Sons, E. V. Low, Stuart Low & Co., J. Stott, and Sander & Sons.

At the meeting held on July 21st the following members of the Committee were present :—Messrs. E. Ashworth (Chairman), Arthur, Ashton, Cowan, Crombleholme, Holmes, Keeling, Lee, Parker, Sander, Thorp, Ward, and Weathers (Hon. Sec.). The exhibition was, as is usual in the summer months, a small one, only a few groups being staged.

The best display was made by Col. J. Rutherford, Beardwood, Blackburn (gr. Mr. Lupton), whose group consisted principally of Cattleyas, Lælias, and Odontoglossums. A good specimen of Cattleya Gaskelliana alba, bearing a dozen and a half blooms, was the pick of the group, and was deservedly awarded a Cultural Certificate. Odontioda × Graireana (Cochlioda Noetzliana × O. Rossii), a pretty and distinct new plant, received an Award of Merit. Odontoglossum × Rossianæ, a charming hybrid between O. × Adrianæ and O. Rossii, and showing the characters of both parents, also received an Award of Merit. This group received **Silver Medal points for R. Ashworth's Cup.**

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), exhibited several interesting plants, including Miltonia vexillaria var. Lambeauiana, a fine large, nearly pure white variety, which was awarded a First-class Certificate, and Odontoglossum × ardentissimum, var. Imperial Purple, a beautiful variety, which was voted an Award of Merit.

H. J. Craven, Esq., Keighley (gr. Mr. Corney), also exhibited Miltonia vexillaria var. Lambeauiana, to which a First-class Certificate was awarded, while M. × Bleuana, Beeches' var., a plant of much character, received an Award of Merit.

Mr. J. Birchenall, Alderley Edge, was voted a First-class Certificate for the distinct and handsome Stanhopea Rodigasiana, the column and lip being very pronounced in character, standing out clearly from the sepals and petals.

Messrs. Sander & Sons, St. Albans, made a nice display of Odontoglossums and Cattleyas in variety.

Messrs. A. J. Keeling & Sons, Messrs. Stuart Low & Co., Mr. E. V. Low, and Mr. J. Robson also contributed to the exhibition, to all of whom the thanks of the Society was accorded. P.W.

CATTLEYA MENDELII VAR. BLUNTII.

A CORRESPONDENT asks what is Cattleya Mendelii var. Bluntii, remarking that he has never seen it. It is the albino of C. Mendelii, and originally appeared over thirty years ago, as will be seen from the following concise history by Mr. John Day, which is appended to a fine painting made by him on June 21st, 1878 (*Day Orch. Draw.*, xxiv. t. 25): "This glorious Cattleya is a white variety of C. Mendelii, and was bought by me in flower of Messrs. Hugh Low & Co., who received it with a large quantity of C. Mendelii brought home by Mr. Henry Blunt from New Granada, in September, 1874. He saw it in flower, and tied a bit of string round it, and strongly advised Mr. Low not to part with it till it flowered, which, for a wonder, Mr. Low acted upon. It flowered in June, 1876, and Mr. Low exhibited it at the grand Flower Show at the opening of the Aquarium, when it was much admired. It bloomed also last year, and this year it has had a couple of spikes of two flowers each. Nothing can exceed the purity of the white—there is not a trace of colour anywhere except the yellow on the labellum." In the report of the show we find (*Gard. Chron.*, 1876, i. p. 735): "Under the name of Cattleya Bluntii, Messrs. Hugh Low & Co., Clapton, exhibited a new and very fine pure white variety, somewhat resembling C. Mendelii in form, and having a beautifully fringed lip." At the Orchid Conference held in May, 1885, Messrs. F. Sander & Co. received a First-class Certificate for "Cattleya Bluntii, a fine pure white Cattleya, in every respect similar to C. Mendelii" (*G.C.*, 1885, i. p. 641),

and in 1887 we find a plant in the collection of Major Lendy, at Sunbury, which came out of an importation of C. Mendelii made by Messrs. James Veitch & Sons (*G.C.*, 1887, i. p. 770). The plant has been lost sight of because the albino of C. Mendelii is now called by other names.

ORCHIDS IN SEASON.

A FINE flower of what we believe to be a form of Cattleya × weedoniensis is sent by M. J. Ginot, St. Etienne, France. It was raised by him as a seedling from Cattleya granulosa Schofieldiana, but he has a little doubt whether the pollen parent was C. Mendelii Bluntii or a form of C. Mossiæ. The very deeply three-lobed lip with long angular side lobes is conclusive as to C. granulosa, and we should say that the other parent was a form of C. Mendelii. The greatly enlarged flower, broad petals, and almost uniform delicate pink colour of the sepals and petals, as well as the coloration of the lip, are just as might have been expected. The broadly obcordate front lobe is bright rose-purple, the tips of the side lobes blush pink, and the disc and inside of the side lobes light yellow. It is very attractive, and may be called C. × weedoniensis var. Marinette, in accordance with M. Ginot's suggestion. An Odontoglossum sent with it we believe to be a rather smal form of O. Insleayi.

A very fine flower of Læliocattleya callistoglossa is sent from the collec tion of John S. Moss, Esq., Wintershill, Bishops Waltham, by Mr. Kench, who gives its parentage as Cattleya gigas Sanderiana × Lælia purpurata. It has an expanse of 9½ inches across the petals, and is delicate blush pink, with the front of the lip rich purple-crimson, 3 inches broad, and the throat with two large clear yellow eyes.

A fine flower of a seedling Cattleya is sent from the collection of G. Hamilton-Smith, Esq., Finchley, by Mr. Coningsby, who remarks that it was purchased as a small seedling at Protheroe and Morris' Sale Rooms in 1908, with the parentage, C. Schofieldiana × aurea, but now that it has flowered he believes that C. Warscewiczii (gigas) was the pollen parent. It has always seemed too strong a grower for an aurea seedling, and both the habit and the two yellow eyes on the lip suggest C. Warscewiczii. The bulb that has flowered is 10 inches long, rather stouter than in the seed parent, and has two leaves, 7 inches long by 2½ inches broad. We agree with the suggestion, and think that the plant is a form of C. × Wavriniana. Mr. Coningsby remarks that the pollen from it has been used on C. gigas imperialis.

A fine hybrid Paphiopedilum, which was acquired as a seedling of unknown parentage, is sent from the collection of R. Gallsworthy, Esq., Bayswater Hill, W. It shows the influence of P. Charlesworthii very strongly, and the other parent must have been a species of the tessellated-

leaved group or a hybrid from it. The scape is two-flowered, and the dorsal sepal rose-purple with a darker basal area and some similar veining. The petals are purplish, with some minute dark dotting, as if some hybrid from P. superbiens were the other parent, while the lip is somewhat similar in colour, and the staminode broadly hippocrepiform, and white, with a tinge of light purple. It is unfortunate that so little of its history is known.

A three-flowered inflorescence of the very handsome Cattleya × Rothschildiana, Westonbirt var. (Gaskelliana × Dowiana), is sent from the collection of Lt.-Col. Sir G. L. Holford, Westonbirt, by Mr. Alexander. The flowers are of perfect shape, the sepals and petals bright lilac-rose in colour, the throat and disc of the lip rich orange, and the front lobe brilliant purple-crimson. It is from the plant which received a First-class Certificate from the R.H.S. in July, 1906.

Several interesting flowers are sent from the collection of His Honour, Judge Philbrick, Bodorgan House, Bournemouth. There is a very pretty Cattleya of unknown parentage, which is said to be almost identical in growth with C. Bowringiana, but perhaps a little more sturdy. The flower, however, is very distinct, the lip having rather short side lobes, and a trace of Dowiana-like veining on the disc, and we are inclined to think it may be a form of the variable Cattleya × Adula (bicolor × Hardyana). The sepals and petals are broad, well expanded, and blush pink; the side lobes of the lip similar in colour, and as long as the white column, while the front lobe is crimson-purple, the disc distinctly veined with whitish yellow, and with a brighter yellow marking in the centre. The scape is four-flowered. The others are, a flower of the brightly-coloured C. × lucida (Bowringiana × Schilleriana), a form of Paphiopedilum × Fowleri (Rothschildianum × callosum), said to be the reverse cross of the original, and what may be a form of P. × Helvetia (Chamberlainianum × philippinense), though it is said to have broader, more glaucous foliage, also a broader dorsal sepal. It shows the philippinense character very strongly.

THE HYBRIDIST.

ODONTOGLOSSUM × MAURITANIA.—A distinct and striking hybrid raised in the collection of John S. Moss, Esq., Wintershill, Bishops Waltham, from O. sceptrum crossed with the pollen of O. × Rolfeæ. The flowers are larger than in the seed parent, and the sepals are pale sulphur yellow, heavily barred with dark brown, the petals toothed, cream white, with dark brown blotches, and the broadly pandurate lip white, with one large purple blotch in front of the deep yellow toothed crest, and many purple streaks at the sides. The column wings are narrow and toothed. It was exhibited at the R.H.S. meeting on August 2nd, and one of the flowers has now been sent by Mr. Kench.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during September, on the 13th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on September 8th and 22nd. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m. The following meeting is fixed for October 6th.

THE GHENT QUINQUENNIAL.—We are reminded, by the receipt of the first provisional programme, of the seventeenth International Horticultural Exhibition of the Société Royale d'Agriculture et de Botanique de Gand, to be held at the end of April, 1913, and we note that, as usual, a large number of classes are set apart for Orchids, classes 22 to 106, to be precise. They include classes for 100, 50 and 25 Orchids, for the best general collection, for the collection containing the greatest number of distinct species, and for groups of the various popular genera, in most cases with separate classes for amateurs and nurserymen. There are also classes for single specimens of the various popular genera, for certain geographical collections, for 12 hardy Orchids, for the best 50 Orchids suitable for cut flowers, 10 of each kind, and for the best 12 and 25 free-flowering Orchids, not to exceed 200 and 500 francs, respectively, in value. We hope to see the meeting again a great success.

A photograph of the fine group of Orchids exhibited by Messrs. Mansell & Hatcher at the Show of the Leeds Agricultural Society, held from July 26th to 28th, and to which a Gold Medal was awarded, is given in the *Gardeners' Magazine* for August 6th, p. 616.

CATTLEYA × FABIA ALBA.—I sent you recently a flower of a seedling supposed to be from Cattleya labiata, white var., crossed with C. Dowiana aurea. It was noted at page 253. At the time of sending I had my doubts about it. Mr. Leemann therefore wrote to M. Peeters, the raiser, who replied that it was Fabia, but in answer to another letter said possibly it might be a stray seedling of Gaskelliana alba × Warneri alba, that is, C. × Myra Peeters. This is what we have decided to call it, and I think you will be interested to know. I don't know how Peeters becomes Preston, but would like to point out the mistake in the note of raiser's name. S. SMITH.

We think the amended parentage the more likely of the two, and it may be possible to compare them next year.—ED.

ORCHID PORTRAITS.

BULBOPHYLLUM VIRESCENS, J. J. SM.—*Bot. Mag.*, t. 8327.

CATTLEYA × ARTEMIS.—*Journ. Hort.*, 1910, ii. p. 123, with fig.

CATTLEYA × O'BRIENIANA ALBA.—*Journ. Hort.*, 1910, ii. p. 75, with fig.

CATTLEYA WARSCEWICZII, LOW'S VAR.—*Journ. Hort.*, 1910, ii. p. 171, with fig.

CATTLEYA WARSCEWICZII OTHELLO.—*Gard. Mag.*, 1910, p. 617, with fig.

CYPRIPEDIUM × VIDOR.—*Journ. Hort.*, 1910, ii. p. 99, with fig.

DISA GRANDIFLORA (group).—*Gard. Mag.*, 1910, p. 657, with fig.

MILTONIA VEXILLARIA VIRGINALIS (specimen).—*Gard. Mag.*, 1910, p. 591, with fig.

ORCHIS MASCULA (group).—*Journ. Hort.*, 1910, ii. pp. 102, 103, with fig.

PESCATOREA LAMELLOSA.—*Journ. Hort.*, 1910, ii. p. 147, with fig.

VANDA CŒRULEA, WESTONBIRT VAR.—*Gard. Mag.*, 1910, p. 667, with fig.

MORTAR RUBBLE FOR CYPRIPEDES.—I read the paper by Dr. Miles Johnston, on the culture of Cypripedes in mortar rubble (page 225) very carefully, and mean to try a few plants by the method indicated. Long ago I found it of use in their culture, but not to the extent the Doctor recommends. However, I will experiment, and let you know of any results. F. A. PHILBRICK.

THRIP.—A Correspondent, who some time ago sent us an example of "Cypripedium rust," due to the presence of yellow thrip, writes to say that the outbreak was confined to the plants on one shelf, and that all sorts of remedies were tried, but that he found common methylated spirit to be the best. The plants are now growing, and the new growth is clean and strong.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

X.—The name given is the one under which the plant was certificated, and it was a matter of history to record it. We suppose it was exhibited under that name, and was worthy of recognition. We deprecate the use of such names.

H.A.I.—We will try to get this troublesome insect identified, and find out if possible, if there is not some way of keeping it in check.

S. & S.—Cirrhæa viridipurpurea.

J.F.S.—Polystachya luteola and Oncidium Suttoni.

Photographs received, with thanks.—C. & Co., S. L. & Co., H.G.A., G.H.P.

Several notes are unavoidably postponed.

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *OCTOBER*, 1910. [No. 214.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 166).

THERE now remains the large tribe Vandeæ to be considered, in which the culminating point of development in the Orchidaceæ is reached. It is a vast and polymorphic tribe, and contains such diverse genera as Cymbidium, Zygopetalum, Lycaste, Stanhopea, Catasetum, Cycnoches, Maxillaria, Odontoglossum, Oncidium, Vanda, Phalænopsis, Angræcum, and numerous other popular garden genera. Bentham, in 1881, estimated that it comprised 130 genera and about 1,400 species, and the number has been considerably augmented since then. He assigned to the tribe much the same limits as did Lindley, and remarked of it as follows :—

"The plants are mostly epiphytical and frequently pseudobulbous. The inflorescence is generally lateral, although in a few genera it terminates leafy stems. The essential character resides in the anther and pollinary apparatus. The anther, operculate and deciduous as in Epidendreæ, is more closely incumbent on the rostellum, and when mature usually appears one-celled, or nearly so ; the two cells, perhaps always distinct in the young bud, become confluent when open, or are only separated by a partially raised line in the anther case, and in all probability are always divaricate, not parallel as in Epidendreæ. The pollen of each cell is a waxy, globular, ovoid, or oblong mass, not tapering to a point or caudicle, and either entire or more or less divided into two by a transverse or oblique furrow or section. Thus the pollen-masses, when four in the anther, are fore and aft in each pair, not all four collateral and parallel, as in most Epidendreæ. When the flower opens, the anther-case is very readily detached, leaving the two pollen-masses or pairs of pollen-masses belonging to the two cells separately and firmly attached to a scale or plate which becomes detached from the back of the rostellum. This scale or plate, with the attached pollen-masses, constitutes the *pollinarium*. When it is small and thick, and almost wholly viscid, it assumes the appearance of a gland, and is so denominated ; but in many cases it takes the shape of a broad scale, or is prolonged into a linear or oblong, single or sometimes double, stipes, bearing the pollen-masses at the further end ; but the under surface at the lower end is always highly

viscid, and the whole pollinarium is readily carried off by any insect or other foreign body with which it may come in contact, giving it a fair chance of being lodged on the stigma of another flower. It is that form of pollinarium in which the pollen-masses and gland are separated by a stipes which has been erroneously described as pollen-masses with a caudicle and gland, and has led to confounding it with the true caudicles and gland of Ophrydeæ and of Calanthe and some other Epidendreæ."

Bentham divided the Vandeæ into eight subtribes, though he remarked that habit, and even geographical distribution, had often to be relied upon rather than actual character, and that when some of the doubtful genera were better known considerable modifications might be necessary. These subtribes were as follows:—Eulophieæ, Cymbidieæ, Cyrtopodieæ, Stanhopieæ, Maxillarieæ, Oncidieæ, Sarcantheæ, and Notylieæ, and we may consider them in the order named.

The subtribe Eulophieæ was held to comprise the genera Eulophia, Lissochilus, and Galeandra, most of the species being terrestrial, with subterranean rhizomes, long plicately-veined leaves, and simple erect flowering scapes, a few species, however, being epiphytic and pseudobulbous. Eulophia is a large genus of over 200 species, the great majority being African, with several others in India, the Malayan Archipelago to North Australia, and a few in Tropical America. It now includes Cyrtopera, which Lindley had considered distinct, and which Bentham united with Cyrtopodium and placed in Cyrtopodieæ. Very few of the species are in cultivation, though E. guineensis is a handsome species not infrequently met with. Lissochilus is an exclusively African genus of which nearly 100 species are known. They are very similar to Eulophia in habit, but are usually taller, and many of them have very showy flowers. Several of them are well-known in cultivation, and very handsome. Galeandra is a Tropical American genus of nearly twenty species, the majority being epiphytic, with fusiform pseudobulbs, and the lip funnel-shaped and terminating in a rather long spur. G. Devoniana and one or two others are occasionally cultivated. Pteroglossaspis is a small genus, placed by Bentham in Cyrtopodieæ, but now transferred to Eulophieæ. Six species are known, four being African, one a native of Argentina, and the last of Florida, where it is said to be locally common. The species are spurless, but much like Eulophia in habit. None of them are known in cultivation.

In the subtribe Cymbidieæ Bentham included eleven genera, all of them natives of the Old World, but the anomalous genus Polystachya also found in Tropical America. Bentham remarked: "The plants of this subtribe have generally the habit nearly of Eulophieæ and some Cyrtopodieæ, but have no spur to the labellum nor mentum to the perianth. They are

terrestrial, or more or less epiphytal ; the leaves, usually large and plicate, or many-nerved, are often borne on pseudobulbs ; the racemes, simple or rarely branched, are on leafless scapes or in three genera terminate the leafy stems. The pollen-masses are sessile on the scale-like gland of the pollinarium, rarely produced into a short single or double stipe."

Cymbidium is the principal genus, and ranges from North India and Japan to North Australia, with two or three outlying species in Madagascar. About forty species are known, several of which are very familiar garden plants. Cyperorchis contains about four Indian species, which are now usually included in Cymbidium. Ansellia is exclusively African, and contains about six species, one or two of which are often met with in cultivation. The flowers are borne in panicles or racemes at the apex of the leafy stems. Grammatophyllum is nearly allied to Cymbidium, and contains some half-dozen Malayan species, G. speciosum being one of the largest Orchids known. Grammangis Ellisii is a Madagascan plant, nearly allied to Grammatophyllum, which is rather rare in cultivation. The Javan Cymbidium Huttoni is included in this genus by Bentham, where, however, it is clearly out of place. Dipodium contains about six species from the Indo-Australian and South Pacific regions, and is occasionally seen in cultivation. Cremastra contains a single Japanese and North Indian species, which is probably not in cultivation. Geodorum ranges from India to North Australia, and consists of eight or nine species, one or two of which are occasionally seen in gardens.

The remaining genera are somewhat anomalous. Thecostele contains about five Malayan species, and was referred to the Cymbidieæ by Bentham, though its characters were considered somewhat anomalous. Ridley places it near to Acriopsis. Bromheadia contain about seven species, natives of the Indo-Malayan region, and varying much in habit. B. palustris is occasionally seen in cultivation. Lastly comes the anomalous genus Polystachya, whose headquarters is in Africa, where the species number about 100, while there are some ten others in Tropical America and about half-a-dozen in Indo-Malaya. Both the habit and floral structure are very different from Cymbidium, and it is doubtful whether this is its correct position. An additional genus may be mentioned here, namely Eulophiella, for though at first referred somewhat doubtfully to the following group, it agrees better with Cymbidieæ both in character and in geographical distribution. The three known species are all from the Mascarene Islands, E. Elisabethæ and E. Peetersiana being well-known in cultivation.

Of the subtribe Cyrtopodieæ, Bentham remarked : " I have here collected twenty-one genera, whose general character is to have the prominent mentum of the Maxillarieæ with the foliage and habit of Cymbidieæ, thus forming

a connecting link between those two subtribes, but with limits not always quite so definite as could be wished, for there are here and there species offering exceptions to one or other of the characters. The three first genera are terrestrial, without fleshy pseudobulbs, although the base of the leafy stems often thickens into a hard tuber. The others are epiphytal, and usually, if not always, pseudobulbous. The leaves are generally plicate or with prominent parallel ribs, as in the two preceding subtribes, and the flowering scapes are leafless in all except Govenia. The only exception to the mentum is in Aganisia, which, however, is too closely allied to Zygopetalum to be removed from the subtribe. The pollinarium has generally the stipes much more developed than in Cymbidieæ."

As regards geographical distribution, Bentham remarked that with three exceptions the genera were American, but as these exceptions have since been transferred elsewhere the geographical limitation is now complete. The exceptions were, Pteroglossaspis, now referred to Eulophieæ, Cyrtopera, united with Cyrtopodium by Bentham, but now included in Eulophia, and Plocoglottis, a Malayan genus of about ten species now placed near Tainia in the tribe Epidendreæ. We may now consider the genera of Cyrtopodieæ individually.

Cyrtopodium is a genus ranging from Mexico and the West Indies to South Brazil, and contains about twenty species, of which C. Andersoni and C. punctatum are familiar examples. The fusiform pseudobulbs are somewhat like those of Catasetum in shape, and the flowers are usually yellow and brown, and borne in tall panicles or racemes, the bracts being also sometimes coloured. Govenia, with a somewhat similar distribution, contains about ten species. The flowers are borne in erect racemes, and the leaf-sheaths have the curious character of being frequently tubular and somewhat inflated, forming flask-like receptacles for water. The species are not often seen in cultivation of late years, but G. lagenophora is flowering at Kew at the present time.

Zygopetalum may be taken as the type of a group of allied genera, several of which were united with it by Reichenbach. About twenty species of *Zygopetalum* proper are known, chiefly natives of Brazil and Guiana, several of which are very familiar in gardens, as *Z.* Mackayi, crinitum, intermedium and maxillare. *Zygosepalum* is very nearly allied, and contains about three species, natives of Guiana, Venezuela and North Brazil. They differ from *Zygopetalum* in the beaked anther, broad column wings, and in some other details. *Z.* rostratum is frequently met with in cultivation. Colax, which was included by Bentham in Lycaste, is much nearer to *Zygopetalum* in habit and structure. About four species are known, natives of Brazil.

The next five genera, which Reichenbach united with *Zygopetalum*,

are markedly different from the preceding in habit, the solitary flowers, and in the total absence of pseudobulbs. They keep steadily growing without resting, and in several cases produces flowers at various seasons of the year. Huntleya ranges from the West Indies to Brazil and Colombia, and has about eight species, with a very strongly toothed crest. Warscewiczella has a somewhat similar distribution, and the species number about a dozen, the colour ranging from violet to lilac-purple and white, and the crest being rather small. Pescatorea ranges from Central America to Ecuador, and contains about sixteen species, differing considerably from the preceding in the crest, and the colour ranges from straw colour to white with purple tips, and rarely to violet-purple. Bollea differs from all the preceding by its very broad column and the enormous crest of the lip. There are about eight species, varying in colour from violet-purple to white. Promenæa contains a few dwarf species, natives of Brazil, the best known being P. stapelioides and P. xanthina, but there are two or three others of somewhat doubtful status. Kefersteinia is closely allied to the preceding, and contains about ten very dwarf species, mostly Colombian, several of which are very imperfectly known.

A few other genera which were not included in Zygopetalum are very closely allied. Chondrorhyncha is most allied to Warscewiczella, and includes about half-a-dozen Central American and Colombian species, of which C. Chestertoni is very familiar in gardens. Aganisia has about ten species, in which the flowers are borne in erect racemes, while Paradisanthus has two species very similar in habit and structure. Acacallis cyanea is a very handsome Brazilian plant, sometimes included in Aganisia, but distinct in many respects and with much larger flowers, while Warrea has about three species, natives of Brazil, Colombia and Peru, with a much more globular perianth. Eriopsis is a very distinct Andine genus of about four species, in which the flowers are borne in dense racemes.

Another group is marked by having the base of the sepals united to the somewhat elongated foot of the column, producing a distinct mentum to the perianth. Lycaste is widely diffused, from Mexico to Peru, and contains about twenty-five species, several of which are very familiar in gardens. Paphinia, which was included in Lycaste by Bentham, is nearly allied, but different in habit, and structure. It contains about four species. Anguloa is nearly allied to Lycaste, though markedly different in its globular perianth and in the structure of the lip. It extends from Peru to Venezuela, and contains five species. Bifrenaria differs from Lycaste in having a racemose inflorescence, and in some structural details. About ten species are known, mostly natives of Brazil and Guiana. Xylobium has also a racemose inflorescence, though different in structure. It ranges from Central America and the West Indies to Peru, and contains about twenty

species. Batemannia is another allied genus of about four species. Grobya is rather distinct in habit, and contains two Brazilian species. Cheiradenia, placed near here by Bentham, contains a single small-flowered species from British Guiana, which is probably not in cultivation.

Three other genera were included in the Cyrtopodieæ by Bentham, namely Gongora, Lycomorium and Lacæna, but they seem better placed in the Stanhopea group and may be left for our next paper.

R. A. ROLFE.

(To be continued.)

ORCHIDS AT GATTON PARK, REIGATE.

THE remarkable Australian Dendrobium cucumerinum, which takes its name from the resemblance of its leaves to little cucumbers, is excessively rare in cultivation, but we had the pleasure of seeing a plant in bloom the other day in the fine collection of Sir Jeremiah Colman, Bart., at Gatton Park, Reigate. It is grown on a block, suspended in a Warm house, and Mr. Collier remarks that it is never watered, as it seems to get all the water it requires from the moisture in the house. The plant seems quite healthy, and was bearing a spike of its curious brownish green and white flowers. A plant of the rare D. Toftii was in the same house, but not in bloom. We noticed also good flowering examples of D. bigibbum and D. Phalænopsis, and a light-coloured form of the rare D. Ruckeri. In the same house other Dendrobiums and Spathoglottis are very successfully grown. We may now follow the order of our notes.

In the Cattleya house first visited we saw a beautiful example of the rare C. Warscewiczii var. Frau Melanie Beyrodt, with white sepals and petals, and the front of the lip very richly coloured, also a fine Læliocattleya Henry Greenwood, a well-bloomed Epidendrum fragrans, the handsome Dendrobium regium, and the pretty little D. ciliátum, Cirrhopetalum Macraei, a good example of the Dove Orchid, Peristeria elata, two plants of Ancistrochilus Thomsonianus, Bulbophyllum densiflorum, and the West African Eulophia Ledienii, which has much more handsomely variegated leaves than the Brazilian E. maculata with which it is sometimes confused. In the next house we noted the very distinct Cattleya velutina, C. granulosa, Læliocattleya gattonensis, and a plant called L.-c. Philip Stiles, bearing spotted flowers, with Epidendrum alatum, Phaius flavus, and a few others which we may pass over.

On reaching the Odontoglossum house, we noted about two dozen spikes of Odontioda Bradshawiæ, making a very brilliant display, with several plants of Odontoglossum × Thompsonianum in flower and bud, O. Harryanum, O. ramosissimum, O. × armainvillierense augustum, a seedling from two blotched forms of O. crispum, bearing a strong spike of buds,

Masdevallia racemosa, M. gargantua, a number of Cochlioda Nœtzliana, some of them bearing seed pods, and various other interesting things.

In another house were well-bloomed examples of Phaius pauciflorus and Gongora galeata, the pretty Cœlogyne Schilleriana, Masdevallia Chimæra, a fine Brassia brachiata, two well-flowered plants of the brilliant Lælia monophylla, Epidendrum paniculatum, Chondrorhyncha Chestertoni, the rare C. fimbriata with three buds, and various other interesting things. A plant of Plocoglottis javanica was noticed as having the leaves spotted with blackish spots. In the corridor we noticed the handsome Sobralia Lucasiana, and several plants of the beautiful S. × Colmaniæ (xantholeuca × Veitchii), one of them with some bronze-colour on the front lobe of the lip.

We had noticed many capsules in the different houses, and on reaching the seedling department we found that excellent progress had been made. A house of seedling Odontoglossums contained many interesting crosses, all in thriving condition, with seedlings of Odontioda Bradshawiæ, and others. In another house were Odontoglossum × percultum, O. × Queen of Gatton, O. × armainvillierense xanthotes, and the pretty Odontioda Thwaitesii. Cattleyas, Læliocattleyas, and Brassocattleyas are represented in every stage, and a lot of Sophrocattleyas were growing well.

Dendrobiums are remarkably well grown at Gatton, and we noted a lot of sturdy seedlings, about two years old, which should yield some interesting things when they reach the flowering stage. In an adjacent house we saw D. nodatum in bloom, and the rare Australian D. monophyllum, the latter with two spikes, and the best bearing twelve flowers, the colour being yellow. There was also a plant of the curious Bulbophyllum clandestinum, while B. Binnendijkii, B. Reinwardtii, and the rare B. mirum were throwing up spikes.

In the other houses we saw a lot of Spathoglottis Fortunei hybrids, some of which should flower soon, and here we noted a plant of the rare Sarcochilus Fitzgeraldii, with the handsome Zygopetalum × Roeblingianum, Cypripedium Fairrieanum in bud, Cirrhopetalum biflorum with about a dozen spikes, now nearly over, and the curious Cynorchis Lowiana. Mr. Collier pointed out a batch of seedlings between Epidendrum × Boundii and Epiphronitis Veitchii, which will be watched with interest, as the latter is generally supposed to be a sterile hybrid. The deciduous Calanthes were doing remarkably well, the plants showing great vigour, and being free from spot, which sometimes works so much mischief among them. They should make a great display in the coming autumn.

The collection generally is in excellent condition, and we were particularly pleased to see the increasing number of rare botanical species it contains. Further progress may be anticipated in this direction, for Sir Jeremiah Colman takes a great interest in them, and the materials to select from are ample.

DENDROBIUM VEXANS.

THE history of the plant recently identified with the long-lost Callista amabilis, Lour., has already been given (pp. 99, 242), and we hoped that its identification with Dendrobium hercoglossum, Rchb. f., had settled the matter. It is, however, now described by Prof. Dr. Udo Dammer as a new species, under the name of Dendrobium vexans, also as belonging to a new genus or a new section of Dendrobium, under the name of Goldschmidtia, "Goldschmidtia U.D., gen. nov. vel. sect. nov. generis Dendrobium" (*Orchis*, iv. pp. 86, 87, with fig.). The characters relied upon for its separation from Dendrobium are common to the species of an anomalous little group, which includes D. aduncum, Wall., D. linguella, Rchb. f, and D. hercoglossum, Rchb. f., and all must come under Goldschmidtia, whatever its subsequent history may be. The chief differences reside in the peculiar saccate base of the lip, and its appendages, together with a slight modification in the shape of the mentum, which is a very variable character in Dendrobium. D. aduncum is a well known North Indian species, which is figured in the *Botanical Register* (1846, t. 15). D. linguella is only known from the original description. It was introduced from the Malay Archipelago by Messrs. James Veitch & Sons, and is said to differ from D. aduncum in its double lamellar appendages at the base of the lip. D. hercoglossum was described from a plant which flowered with Messrs. Sander, and is said to have been sent from Malacca by Forstermann. A Chinese plant figured in the *Botanical Magazine* (t. 6784) was subsequently identified with it, and its geographical is not very exactly known.

R. A. ROLFE.

ORCHIDS BY COLOUR PHOTOGRAPHY.

MR. CHAMBERLAIN'S ORCHIDS.—Mr. W. T. Clarke, of Redditch, says a Birmingham newspaper, secured several good photographs by the direct autochrome process on Whit-Monday, at Highbury, of the Right. Hon. Joseph Chamberlain's splendid Orchids in the flowering house. By quite a coincidence the identical blooms were cut and utilised the next day to compose the magnificent wreath despatched, by a special messenger, by Mr. and Mrs. Joseph Chamberlain to Windsor. The facts were brought by Mr. Clarke to the notice of Lord Knollys and Sir Arthur Bigge, and he was promptly authorised to forward photographs to Buckingham Palace for He Majesty Queen Alexandra, and to Marlborough House for His Majesty King George V. respectively. Both Mr. and Mrs. Chamberlain inspected the photographs prior to posting, and declared them to be marvellously true to Nature, and also expressed pleasure at Mr. Clarke's idea in offering them to their Majesties.—*Journal of Horticulture.*

TREVORIA LEHMANNI.

When the late Consul F. C. Lehmann described the remarkable genus Trevoria, he remarked that there were two species, one discovered at 500 mètres elevation, in Ecuador, in 1887, in fruit only, and a second found in Colombia, at 1,000 to 1,700 mètres elevation, in 1896. The latter had rather short racemes of three to five flowers, but the former had racemes of

Fig. 18. Trevoria Lehmanni.

40 centimétres long, thickly set with seed vessels, indicating from twenty to thirty flowers. The Colombian species was described and figured under the name of Trevoria Chloris (*Gard. Chron.*, 1897, i. p. 345, Suppl., fig. 128). In October, 1900, a plant obtained under this name flowered in the collection of Sir Trevor Lawrence, Bart., when I gave the history of the genus

(*O.R.*, viii. pp. 335, 336), remarking: "A comparison with Mr. Lehmann's drawing shows several marked differences. The petals are much broader and less attenuated, while the front lobe of the lip is ovate-elliptical rather than linear, but whether this is due to variation or to some other cause is not yet apparent." The original specimen was not available for comparison. Sir Trevor's plant was soon afterwards figured in the *Botanical Magazine* (t. 7805), as Trevoria Chloris.

Since then the Lehmann Herbarium has been acquired for Kew, and it contains a Colombian specimen authenticated by Lehmann himself as Trevoria Chloris. This consists of two leaves and part of the inflorescence bearing a single fruit. On a second sheet were unlabelled flowering and fruiting racemes which probably belong to the original ticket, for the flower on examination proves identical with Lehmann's figure. No trace of the Ecuadorian plant with the long raceme of fruits only has been found.

In September, 1903, three flowers were sent to Kew by Mr. J. O'Brien, with the record that they were "from a plant of Trevoria sent over by Lehmann, presumably of T. Chloris," and they proved identical with the one in Sir Trevor's collection.

On September 25th, 1908, a Botanical Certificate was given by the R.H.S. to a plant of "Trevoria Chloris" from the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow (*O.R.*, xiv. p. 310), which I had not the pleasure of seeing, but the plant has now flowered again, producing two racemes, which have been kindly sent by Mr. Ashworth, together with the photograph here reproduced. This is also identical with the one in Sir Trevor's collection, and it is now evident that there is a third species, which may be called T. Lehmanni, after its discoverer. The original species, still only known from fruiting specimens, may be called T. ecuadoriensis. The following are the references to the three species:—

T. ECUADORIENSIS, Rolfe. T. sp., Lehm., in *Gard. Chron.*, 1897, i. p. 346; *Orch. Rev.*, v. p. 203; viii. p. 335.—Ecuador.

T. CHLORIS, Lehm., in *Gard. Chron.*, 1897, i. p. 345, Suppl. fig. 128; *Orch. Rev.*, v. p. 203; viii. p. 335 (in part).—Colombia.

T. LEHMANNI, Rolfe. T. Chloris, Rolfe in *Orch. Rev.*, viii. p. 335 (in part); *Bot. Mag.*, t. 7805 (non Lehm.).—Colombia.

As regards T. ecuadoriensis nothing further can be said until materials are available. T. Chloris now rests upon Lehmann's original description and figure, with the corresponding dried specimens above mentioned. It differs from the following species in having longer and much narrower attenuate petals, and a linear front lobe to the lip. T. Lehmanni is fully described in the *Botanical Magazine* under the name of T. Chloris. Its general appearance is very well shown in the annexed figure, and we may add that the flowers measure over an inch long, and are pale green in

colour, while the petals, lip and column are white. The history and affinities of the genus have already been given, and we may remark, in conclusion, that the one-sided racemes, the inverted flowers, the very concave side lobes of the lip, forming a rounded sac at the base, and a curious fringed margin which surrounds the base of the column in front are all remarkable. Their precise significance in the economy of fertilisation can only be inferred at present.

R. A. Rolfe.

ORCHIDS AT COOKSBRIDGE.

About three years ago we had the pleasure of seeing the establishment of Messrs. J. & A. A. McBean, at Cooksbridge, and of noting some of its prominent features (*O.R.*, xv. pp. 228-231), particularly with respect to the raising of seedling Odontoglossums, which was being taken up in earnest, after some of the initial difficulties had been overcome. An opportunity recently presented itself of calling there again, and we were not surprised to find that during the interval great progress had been made, not only with Odontoglossums but with various other genera. This establishment now contains an enormous number of seedlings in various stages, and we noted a number of interesting crosses that have been made, also a number of Orchids that were also seen in bloom in passing through the various houses, and we may now give a few details.

Two erratic crosses confronted us at the very outset, for on entering the first house, containing numerous Læliocattleyas, Cymbidiums, and other seedlings in various stages, we were shown young plants derived from Zygopetalum × Cymbidium, and others from Epidendrum radicans × Bletia Shepherdii, both resembling the seed parent in habit. The former will not improbably result in a batch of pure Zygopetalums—at all events if history repeats itself—but the behaviour of the latter will be watched with interest, for Epidendrum radicans has a reputation of another kind. The next house was also devoted to seedlings of various genera, and here some plants were pointed out as the result of crossing Brassavola nodosa with Cattleya Mendelii.

On entering an Odontoglossum house we noticed in bloom plants of O. Harryanum, O. Wallisii, O. Uroskinneri, and Cochlioda Nœtzliana, and a lot of capsules on the latter told of hybridising operations. Some nice plants obtained by crossing this species with Oncidium macranthum were pointed out, and we could not help wondering what the flowers would be like. Seedlings from C. Nœtzliana × Odontoglossum nebulosum were also interesting, but repeated attempts to raise the reverse cross have only ended in failure. There were also seedlings from O. Edwardii crossed with Ada aurantiaca and with Oncidium hastilabium. Seedling Odontoglossums

were numerous, and in thriving condition, but must be left until they flower Seed capsules were also noted on Odontoglossum Cervantesii and other species. In an adjoining house some seeds obtained from O. Edwardii crossed with Miltonia vexillaria were germinating well, and we noted a few good O. crispum and O. × Rolfeæ in flower.

A small Mexican house is devoted entirely to white Lælia anceps, nearly all the varieties being represented, and we found the plants in vigorous health, and the spikes already beginning to push up, promising a good display of bloom in the autumn. In the next house, devoted chiefly to Odontoglossums and cool Cypripediums, we saw a nice lot of Cochlioda Nœtzliana in bloom, with C. vulcanica, Odontoglossum Lindleyanum, O. Pescatorei, Maxillaria grandiflora, and a nice lot of Oncidium macranthum. A capsule on the latter was the result of crossing with Odontoglossum Kramerianum, which should be interesting if seedlings are obtained. A capsule of Odontoglossum crispum × Ada aurantiaca was also pointed out.

In a Cattleya house we saw C. × Germania with a fine truss of eleven flowers, C. Harrisoniana, C. Warscewiczii and a few C. Gaskelliana, Læliocattleya Baroness Schröder, Brassolælia Jessopi, Oncidium Kramerianum, and several Epiphronitis Veitchii. Attempts have been made to cross this hybrid with both its parents, but without success. There was a good plant of Brassavola nodosa × Cattleya Trianæ, a number of capsules of Sophronitis grandiflora, of various Cattleyas, and one from Thunia × Bletia Shepherdii. In the next house were a lot of Cattleya seedlings, including various crosses from C. labiata and C. Dowiana, also a number of Cymbidiums, with a good Dendrobium regium in bloom and a lot of D. Phalænopsis in spike.

A Cymbidium house contained a lot of established plants, with a few seedlings, and here we noticed several C. callosum Sanderæ in bloom, with one flower of C. insigne Sanderæ. There were also several Miltonia vexillaria in bloom, including the variety superba, and some were bearing capsules. Odontoglossum × Adrianæ was also in bloom, with a few good O. crispum, a couple of O. × loochristiense, one of them having brown bars on the sepals, and a blotch on the lip, while the petals were clear unspotted yellow—a bright and attractive form.

We now entered the three large Odontoglossum houses, which are filled with established plants, the majority being good forms of O. crispum grown for cut blooms, and many of them showing great vigour. Some good white and rosy forms of O. crispum were in bloom, and many others were showing spikes. One good form had a distinct tinge of yellow in the flowers, while a plant of O. c. virginale is said to have invariably a tinge of this colour when the flowers open. One of the plants had a fine panicle with six side branches and an aggregate of forty-three flowers, recalling

Lindley's original type of the species. Another had a well-spotted flower recalling a form of O. × Ruckerianum in this respect. With them were several diverse forms of O. × Adrianæ, one of them belonging to the yellow spotted type, O. Lindleyanum, two good O. × Wilckeanum, O. constrictum, and O. × armainvillierense xanthotes with four side branches to the inflorescense and an aggregate of twenty-five flowers. A seedling from O. × Ruckerianum crossed with O. Hunnewellianum had flowers with a yellow ground, recalling O. × Adrianæ in most respects. Cochlioda Noetzliana × O. polyxanthum had a yellow flower with only a tinge of red. A small seedling from O. crispum Speculation crossed with O. c. Pittianum was nicely blotched and very promising.

The establishment at Cooksbridge has a reputation for Odontoglossum culture, and Messrs. McBean attribute their success largely to the amount of light which the plants receive during the winter months, when growth is taking place. The extension of the hybridising department, which is now in progress, should therefore yield some interesting results in the near future.

CALENDAR OF OPERATIONS FOR OCTOBER.

By W. C. Price, Oakdene, West Didsbury.

During the dull months, when there is not much potting to be done, everything should be thoroughly cleaned, so that a good start can be made next season. Potting materials may also be prepared ready for a start next year, and so save valuable time which can ill be spared when the potting season proper arrives. Loam, peat, polypodium and Osmunda fibres can all be got ready, and stored away in a suitable place, leaving out the sphagnum moss, which must be added at the time of using. Crocks for crocking the pots may also be got ready.

Owing to the sunless season we have been having lately, great care should be taken to harden up the plants as much as possible, and due attention paid to the watering, damping and ventilation. The blinds will not be needed now, except perhaps on the Odontoglossum house, and a few of the softer-leafed section, and then only during very bright sunshine (if we get any more).

Temperatures for the different departments for the coming month should be as follows:—

Cypripedium house,	day, 68° to 72°;	night, 68°;	morning, 63°.
Cattleya house,	day, 65° to 68°;	night, 65°;	morning, 60°.
Intermediate house,	day, 62° to 65°;	night, 62°;	morning, 58°.
Odontoglossum house,	day, 58° to 60°;	night, 58°;	morning, 55°.

Anguloas, in the Intermediate house, have now finished up their bulbs, and should have the supply of water gradually reduced, and only sufficient

given them during the following months to prevent the bulbs shrivelling until the new growths are commencing to push.

ANGRÆCUMS, in the Warm house, such as A. articulatum, citratum, eburneum, Ellisii, and sesquipedale, will now have finished flowering, and should be kept slightly drier at the roots, but should never be allowed to suffer from lack of water. A. bilobum, Humblotii, metallicum, and Mooreanum, also in the Warm house, are now in spike, and some of the most forward are in flower, and should have copious supplies of water until the flowers are off, when they may be treated the same as the above varieties. As soon as signs of activity are seen any requiring it may be repotted. A good compost for them consists of one-third Osmunda fibre to two-thirds of fresh sphagnum moss, well mixed together. Give ample drainage, and pot moderately firmly. They should occupy a moist position near the glass, and be kept well sprayed when growing.

RODRIGUEZIA fragrans and candida may now be repotted. A good compost for them consists of half each of fresh sphagnum moss and Osmunda fibre, well mixed together. They do best when placed either in pans or teak baskets, and suspended from the roof at the warm end of the Intermediate house, and where they are not exposed to too much light. R. decora and R. pubescens have now nearly completed their season's growth, and will soon be pushing their flower spikes. They should have a plentiful supply of water until the flowers are off, but care should be taken so that they do not get saturated, as they easily rot if over-watered. On the other hand, they should never be allowed to get quite dry at the roots at any time.

CALANTHES of the vestita section, such as C. vestita luteo-oculata, C. Regnieri, and its varieties Sanderiana and Williamsii, C. × bella, × Bryan, × Veitchii and × William Murray, have completed their growths, and are now pushing up flower spikes. They should now have the liquid manure water, as recommended in the August Calendar, given them every time they are watered, being careful not to overwater them, or give the manure water too strong. It helps to make strong spikes, and the ammonia from the soot helps to make the flowers much brighter. When they commence to flower, if due attention is paid to the watering and ventilation, they will make a grand show for weeks. They should remain where they have been grown, but should not be sprayed overhead, and they require but very little moisture between the pots. As the leaves are dying off, a few ferns placed between and around the pots will help to make them more effective.

CATTLEYAS.—C. labiata will be making a good show this month where it is grown in quantity. The plants should be kept well supplied with water at the roots until the flowers are over. When cutting the flowers—and the remark applies to those left on the plant until they are over—

the stem and sheath should be cut off as close to the bulb as possible, as the thick sheath is liable to decay, and cause the bulb to rot. They seem to be very susceptible to this, for at this time of the year there is not enough sunlight to dry them up properly. C. Dowiana aurea, C. × Hardyana, and others now flowering, as they pass out of bloom, should be kept drier at the roots. All Cattleyas and allied species should have all the light possible without causing injury, to harden them up for the winter, as owing to the dull weather we have had lately, they are at present very soft for the time of year.

By this time many of the spring flowering Cattleyas, such as C. Trianæ, C. Mendelii, and others of that class, will now have finished up their growths, and will require less moisture at the roots. As they mature their bulbs they should have only sufficient water to keep the bulbs plump, and help the root action, which continues for some time after, as can easily be seen by the number of young roots pushing from the base of the new bulb. These should be carefully looked after, for the plant will require them when in flower. On the other hand, care must be taken not to give too much, either at the root or in the atmosphere, as this is a frequent cause of black rot, often seen among Cattleyas, especially if a fall in the temperature occurs when they are wet. I think it is best to err on the dry side rather than on the wet. Keep all Cattleyas and allied seedlings growing. Do not let them suffer in any way, and where there is not a special house for them they should be placed in the warmest and lightest corner that can be found, where they can be well looked after, and have plenty of moisture.

Cœlogynes.—C. Massangeana, which flowers at different periods of the year, and some of which are in flower now, make a pleasant change in the Cattleya house, where their pendant spikes look very pretty hanging from the roof. Others, in various stages of growth, will keep up a good succession for some weeks. C. Dayana is now growing strongly, and as soon as the bulbs are fully made up should be kept rather on the dry side, but not allowed to shrivel. C. cristata and its varieties, growing in the Intermediate house, are now making up their young bulbs, and should have abundance of water until fully made up. Alternate waterings with the liquid manure previously recommended will be very beneficial to them now.

Comparettias.—C. coccinea and C. falcata, at the warm end of the Intermediate house, are now ready for repotting—if requiring it—and C. macroplectron will be ready at the end of the month. They require the same treatment as recommended for Rodriguezias.

Cymbidiums.—C. Tracyanum and C. giganteum are now fast making up their growths, and some of the earliest are already showing their flower spikes. Any that are at all pot-bound will do all the better if they are given the help of liquid manure when watering. They require an abundant

supply of water until the spikes are over. They are a beautiful sight to see when well flowered, flowering as they do during the dullest time of the year, and the flowers last such a long time in perfection. They should be kept well sprayed until the flowers are open, to keep off red spider, but not heavy enough for the water to lodge in the base of the leaves.

CYPERORCHIS.—C. elegans with its distinct straw-coloured flowers is now in flower, and C. Mastersii with its white flowers prettily spotted with purple which will follow in a few weeks. They are not often seen at their best. They are closely allied to Cymbidiums, and quite as easy to grow if they are given the same treatment.

DENDROBIUMS. — Among Dendrobiums now fast completing their growths for the season, and requiring a cooler temperature to fully harden them up are, D. aureum, Findlayanum, crassinode, nobile, tortile, × Dominianum, × Ainsworthii, and its varieties, Leechianum and splendidissimum, with a host of other hybrids now in cultivation. The grower must use his own judgment, by finding out the parentage of each one he happens to have in his collection, and treating them accordingly. The above named will rest well in a temperature of 53° to 55°. The evergreen kinds, D. densiflorum, thrysiflorum, Farmeri, pulchellum (Dalhousieanum), fimbriatum, chrysotoxum, and suavissimum, as they finish making up their bulbs, must also be given cooler quarters, but will not stand so cool a temperature as the preceding group. The Cattleya house is the best place to rest this section of Dendrobiums, as the leaves do not get spotted if carefully watered, and it is almost impossible to avoid the disfigurement if they are given too cool a temperature.

D. WARDIANUM will also be ready for removal, and this species will stand more cold, when at rest, than any of the warm-growing kinds. This species flowers much better if rested in a temperature of 43° to 45° after the bulbs are fully matured. A good place to rest them is in an ordinary cool conservatory, where they get plenty of light and air. The young growths commence to push very early, and it is quite natural for them to do so, as they are seldom quite dormant for long. The flower buds also push very early, but these things should not tempt the grower to increase the warmth or the supply of water. The middle of March is quite early enough for them to be in flower, and early in April is early enough to place them in their growing quarters, and by doing so the plants do not deteriorate, but increase in vigour. D. Parishii, Bensoni, Lowii, aggregatum, macrophyllum, MacCarthiæ, and D. Phalænopsis are best left in the warmest house, as coming from warmer regions they require more heat to keep them in good health. The supply of water should gradually be reduced until only sufficient is given them to keep the bulbs plump.

CATTLEYA MENDELII VAR. STUART LOW.

The annexed figure represents a very beautiful albino of Cattleya Mendelii which was exhibited by Messrs. Stuart Low & Co., Bush Hill Park, Enfield, at the last Holland House Show, under the name of C. Mendelii var. Stuart Low, and to which a First-class Certificate was given. It is reproduced from a photograph kindly sent by the exhibitors, and shows that the inflorescence bore three flowers of very compact shape, the colour being white with the usual yellow disc. It is a very beautiful form, but how

Fig. 19. Cattleya Mendelii var. Stuart Low.

far it differs from the original C. Mendelii var. Bluntii we cannot say without being able to compare the two together in a living state. The difficulty of bringing all the albinos of a species under a single name resides in the fact that they are not always identical in shape. In other words, albinism is a condition that may operate on different forms of a variable species, producing variable results.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 30th, when there was a very good display of Orchids, and the awards consisted of five medals, one First-class Certificate, three Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a choice group, to which a Silver Flora Medal was given. It contained a good Anguloa eburnea, Odontoglossum Uroskinneri album, O. ramosissimum, O. × Goodsonæ, Miltonia spectabilis Moreliana, Cypripedium × Rossetti, a good C. × Shillianum with three spikes and an aggregate of nine flowers, some pretty Sophrolælias, Cattleya Gaskelliana alba with six flowers, several fine forms of C. × Adula, and C. × Atalanta with a fine spike. A First-class Certificate was given to C. × Rhoda, Fairlawn var. (Iris × Hardyana), a very richly-coloured form of good shape, having bronzy purple sepals and petals, and a deep claret-crimson lip, with some yellow veining at the base, and a white column.

Lt.-Col. Sir G. L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received an Award of Merit for Cattleya × Hardyana, Holford's var., a very fine form, having rosy lilac sepals and petals, and a very richly-coloured lip, with some yellow veining and a pair of yellow blotches in the throat, and for Læliocattleya Golden Oriole var. tigrina (L.-c. Charlesworthii × C. Dowiana aurea), a very beautiful hybrid, bearing an inflorescence of six flowers, having golden yellow sepals and petals, veined with red, and the lip ruby-crimson with some yellow veining at the base. He also sent a plant of the handsome L.-c. Lustre magnifica.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a Botanical Certificate for Dendrobium karoense, a very curious little species from New Guinea, recalling some Pleurothallis in habit, and bearing solitary white flowers from the axil of the leaf. He also received a Cultural Commendation for a very fine specimen of Platyclinis filiformis, literally crowded with its graceful pendulous spikes of yellow flowers.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a pretty little group, including two well-bloomed plants of the orange-scarlet Lælia monophylla, Sigmatostalix radicans, Polystachya paniculata, Maxillaria striata, Cirrhopetalum guttulatum, a fine form of Cryptophoranthus Dayanus, and several good forms of Masdevallia Chimæra.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent the handsome Odontoglossum × Theodora (Rossii × triumphans), O. × Lambeauianum Starlight, a pretty light-coloured form with minute purple

dots on the sepals and petals, Odontoglossum crispum, Mrs. de Barri Crawshay, a beautiful white variety, a handsomely blotched O. crispum, and a good form of Odontioda Bradshawiæ.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent Cattleya × Rhoda, Fowler's var., a very distinct and handsome form, having pale primrose-yellow sepals and petals and a deep rosy purple lip.

The Trustees of the late E. Rogerson, Esq., Didsbury (gr. Mr. Price), sent a good Cattleya × Wavriniana, Miltonia × Bleuana, M. vexillaria superba, and a plant called M. Rogersoni, most like a pale M. vexillaria.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Læliocattleya Mrs. Phayre (L.-c. Norba × C. Dowiana aurea), having cream-yellow sepals and petals, and a rosy lip with some yellow veining, L.-c. Mrs. Phillip Henrique, a dark-coloured flower allied to L.-c. Dominiana, and Cattleya × Lady Chance, having bronzy purple sepals and petals and the lip claret-purple in front.

Messrs. Charlesworth & Co., Haywards Heath, sent a choice group, to which a Silver Flora Medal was given. In the centre were several fine examples of Vanda cœrulea, Odontoglossum bictoniense album, O. × Phœbe, and other hybrids, Cattleya × Germania magnifica, C. × Iris, C. × Adula, C. × Venus Leeana, Læliocattleya Elva and Elvina, the handsome Sophrocatlælia Marathon, Bollea Lalindei pallida, Miltonia × Cogniauxiæ, Rodriguezia pubescens with five racemes, Stanhopea tigrina, and Oncidioda Charlesworthii (Cochlioda Nœtzliana × Oncidium incurvum), a very interesting hybrid, with erect slender spikes of rosy crimson flowers, and fairly intermediate structure.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Flora Medal for a large and showy group, containing some good examples of Oncidium Marshallianum, O. Lanceanum,, Dendrobium Dearei, Vanda Kimballiana, the handsome Cyrtopodium punctatum, Odontoglossum Harryanum, Cattleya × Hardyana, C. superba, a pretty white form of C. Gaskelliana, some fine forms of Læliocattleya callistoglossa, Sophrocatlælia Danæ, Brassocattleya Pocahontas, Trichopilia nobilis, Cirrhopetalum Mastersianum, Masdevallia infracta, Bulbophyllum barbigerum, B. papillosum, B. Dearei, &c.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including three good examples of Dendrobium Sanderæ, the pretty natural hybrid Vanda × amœna, Cattleya × fulvescens, C. × Chamberlainiana, a fine example of Læliocattleya Henry Greenwood, L.-c. Gaston Doin, with yellowish sepals and petals and a rose-purple-lip, Cœlogyne Micholitzii, a good Odontioda Devossiana, some pretty hybrid Odontoglossums, and other good things.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Bank-

sian Medal for a pretty little group, including some good examples of Cattleya × Adula and C. × Atalanta, a fine C. × Hardyana, Holford's var., a light coloured C. × Williamsiæ, Odontoglossum Uroskinneri album, Cypripedium × Maudiæ, &c. An Award of Merit was given to Cattleya × Adula, Vale Bridge var., a fine form, having cream-coloured sepals and petals tinged with rose, and a very broad magenta-rose lip.

Messrs. Mansell & Hatcher, Rawdon, Leeds, showed Eria bractescens, bearing erect spikes of greenish white flowers, and some reddish purple suffusion on the lip.

Messrs. J. & A. A. McBean, Cooksbridge, sent Odontoglossum × ardentissimum album, a good white form.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a few unnamed hybrid Odontoglossums, Miltonias, and a Cypripedium.

Messrs. James Veitch & Sons, Chelsea, sent a plant of Cattleya × Hardyana, in which one flower had a pair of yellow blotches in the throat while the other had more of the yellow veining of C. Dowiana.

At the meeting held on September 13th there was a very fine display of Orchids, and the awards consisted of seven medals, two First-class Certificates, three Awards of Merit, one Botanical Certificate, and one Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a bright and attractive group, to which a Silver Flora Medal was awarded. It contained some fine forms of Læliocattleya bletchleyensis, L.-c. eximia, L.-c. Pacavia, Sophrocattleya Chamberlainii, S.-c. Norton, and other Sophronitis grandiflora hybrids, Oncidium Lanceanum, Odontoglossum × armainvillierense and others, Miltonia Phalænopsis, some fine varieties of Cattleya × Adula, × Mrs. J. W. Whiteley, &c. A First-class Certificate was given to Cattleya × Iris var. King Edward VII. (bicolor × Dowiana aurea), the inflorescence bearing six very large and handsome flowers, with yellowish green sepals and petals, tinged with rose, and the very broad front lobe of the lip bright amethyst-purple.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), also received a Silver Flora Medal for a beautiful group, including Cattleya × Macænas (superba × Warscewiczii), C × Cleopatra (superba × Dowiana), and the intermediate hybrid from C. superba and C. Hardyana—a very interesting series—some good C. × Iris, Brassocattleya Leemanniæ, Sophrocattleyas, some good examples of Odontioda Thwaitesii, and O. × Wilsoni (C. vulcanica × O. Pescatorei), a very pretty hybrid, with the sepals and petals rosy lilac at the base and white above, and the lip showing much of the influence of O. Pescatorei. An Award of Merit was given to Cattleya × Adula, Thwaites' var., a very fine thing, with rosy lilac sepals

and petals, and the front lobe of the lip crimson-purple, with some orange colour at the base. A similar award was given to Odontioda Cecilia (C. Nœtzliana × O. × Wiganianum), a very distinct hybrid, the flowers being of good size, and cream white, densely spotted with Indian red, and blotched with the latter colour round the crest of the lip.

Lt.-Col. Sir G. L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received a First-class Certificate for Læliocattleya Berthe Fournier var. magnifica (L.-c. elegans × C. Dowiana aurea), a very large and handsome form, bearing a spike of six flowers, with glowing rose-coloured sepals and petals, tinged with yellow, and a bright crimson-purple lip. He also sent the beautiful L.-c. Golden Fleece, with bright yellow flowers.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a Cultural Commendation for a very fine plant of Dendrobium Hookerianum (chrysotis), bearing about a dozen racemes of yellow flowers, the lip being fringed and dark brown in the centre, and a Botanical Certificate for Bulbophyllum polyblepharis, a very curious species, having solitary, dark purple flowers, borne on slender scapes some two inches high, with lanceolate sepals and a very hairy lip. He also sent the remarkable Stanhopea Rodigasiana, Sophrocatlælia pumeximia (L. pumila × S.-l. eximia, and the rare Philippine Dendrobium bursigerum, an ally of D. secundum.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cypripedium × Angela (niveum × Farrieanum), a very beautiful hybrid of intermediate character, the flower being white, with dotted purple lines on the dorsal sepal, petals and lip, and the centre of the staminode green.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), sent Cattleya × Iris aurifera, with bright yellow sepals and petals, a good Brassocattleya Pluto, and Læliocattleya Ivernia, var. Muriel Wilson, a large and beautiful form, with rosy lilac sepals and petals, and a deep claret-crimson lip.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a very interesting group, including the beautiful white Dendrobium Phalænopsis, Gatton Park var., Eria stellata, a plant of the curious Bulbophyllum lemniscatoides with three racemes, Cattleya Gaskelliana cœrulescens, a hybrid Spathoglottis derived from S. × kewensis, and S. × Colmanii, having white flowers, tinged with lilac on the lip and column, also a hybrid from Odontoglossum Edwardii and O. luteopurpureum.

Messrs. Sander & Sons, St. Albans, staged a very fine group, to which a Silver-gilt Flora Medal was awarded. It contained a fine batch of Vanda cœrulea, one spike carrying as many as twenty blooms, the natural hybrid V. × amœna, several good examples of Dendrobium Sanderæ, some good Cattleya × Iris, C. × Pittiana, C. × Wavriniana, C. × Adula var.

Sunray, Brassocattleya Thorntoni, Læliocattleya Berthe Fournier, L.-c. Walter Gott, with bronzy orange sepals and petals and a ruby-purple lip, Cœlogyne pandurata, Notylia sagittifera, a fine species of Coryanthes, called C. Sanderi, having yellow flowers blotched with purple, and other interesting things.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, which gained a Silver Flora Medal. It contained some beautiful forms of Cattleya × Iris, × Adula, × Venus, and Warscewiczii, Læliocattleya callistoglossa, Brassocattleya Moneta (C. Gaskelliana alba × B.-c. Maronæ) Cypripedium × Baron Schröder, the coral-like Rodriguezia secunda, Acineta chrysantha, a fine form of Oncidium Kramerianum, Notylia sagittifera, the rare Chondrorhyncha fimbriata, Cirrhæa viridipurpurea, and other interesting things.

Messrs. Stuart Low & Co., Enfield, received a Silver Flora Medal for a fine group, including some good Cattleya × Iris and × Adula, C. × Parthenia Prince of Wales, some fine Oncidium Marshallianum, Vanda Kimballiana, Cyrtopodium punctatum, Cypripedium × Wottoni, Zygopetalum maxillare Gautieri, the dark violet Bollea Lalindei, Cirrhopetalum Mastersianum and pulchellum, Bulbophylum Lobbii and Dearei, the rare Cœlogyne Micholitzii, Epidendrum Brassavolæ, &c.

Messrs. Mansell & Hatcher, Rawdon, Yorks, also received a Silver Flora Medal for a fine group, including some good Læliocattleyas, Cattleya × Iris, × Adula, and × Atalanta, Brassocattleya Thorntoni, B.-c. langleyensis, Dendrobium Sanderæ and bigibbum, Odontoglossum grande and × armainvillierense, Cypripedium × Rossetti, × Richmanii, and × St. Alban, Gomeza planifolia, and various other good things.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a good group of Cattleya × Atalanta, × Adula, × Armstrongiæ, × Iris, and others, two fine Cypripedium × James H. Veitch, one with two and the other three flower-spikes, Bulbophyllum Lobbii with four flowers, and a fine plant of Epidendrum floribundum in the centre.

Messrs. Wm. Bull & Sons, Chelsea, sent the handsome Cattleya × Maroni aurea, C. × Iris, and a fine example of Odontioda Charlesworthii.

Mr. W. Miller, Clarkson Nurseries, Wisbech, showed a small group of Cattleyas, Cypripediums, and Læliocattleyas.

Messrs. Stanley & Co., Southgate, sent Cypripedium × A. de Lairesse with eight flowers, Cattleya Gaskelliana alba, and some varieties of the variable and pretty C. × iridescens (bicolor × Eldorado).

Messrs. James Veitch & Sons, Chelsea, sent Læliocattleya Pluto, Cattleya × Iris aurifera, and thc pretty Neobenthamia gracilis, having terminal heads of many white flowers, with some orange and purple spots on the disc of the lip.

At the meeting held on September 27th there was again a fine display of Orchids, and the awards consisted of seven medals, one First-class Certificate, and four Awards of Merit.

Lt.-Col. Sir G. L. Holford, Westonbirt (gr. Mr. Alexander), received a First-class Certificate for Cypripedium × Shogun (parentage unknown), a large and handsome hybrid, having a remarkably broad yellowish green dorsal sepal, regularly spotted with brown, with a broad white margin, and an Award of Merit for Cattleya × Dirce var. magnifica (× Vulcan × Warscewiczii), bearing an inflorescence of three fine flowers, with bright purple sepals and petals and a darker lip, with some yellow veining at the base. He also sent the beautiful Cypripedium × Actæus Bianca, C. × nitens-Leeanum var. Hannibal, C. × Germaine Opoix, Westonbirt var., and C. Gaston Bultel var. King Edward VII., all in fine condition.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a pretty little group of about a dozen plants of Dendrobium Phalænopsis, showing much variation, to which a Silver Banksian Medal was awarded. Conspicuous among them were the variety Statterianum, hololeucum, and Gatton Park var., the latter very pale lilac with some dull slaty-blue colour on the base of the lip.

R. G. Thwaites, Esq., Streatham Hill (gr. Mr. Black), also received a Silver Banksian Medal for a very pretty little group, containing half-a-dozen good plants of the bright purple Odontioda Thwaitesii, three quite diverse forms of O. Bradshawiæ, the pretty little Sophrolælia Ortoniana, Brassocattleya Pocahontas (C. Eldorado × B. Digbyana), a pretty white flower with a yellow throat and a fringed margin to the lip, and a number of hybrid Cattleyas, among which forms of × Iris, × Adula, × Fabia, × Peetersiana, × Euphrasia, and × Roupelliana were conspicuous.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged an interesting little group, including good plants of Odontioda Devossiana and Craveniana, with Cypripedium × beechense, C. × Argo-Morganiæ, and four well-flowered plants of C. × H. S. Goodson.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received an Award of Merit for a large and handsome form of Lælia × Degeestiana, having large white flowers with a deep yellow lip. It is the plant certificated at Manchester last week, as L. × W. Thompson, when its parentage was not known.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a handsome Cattleya called The Canon, bearing a spike of three flowers, much resembliag a fine C. × Mantinii.

G. Rae Fraser, Esq., Piggot's Manor, Latchmore Heath, Watford, sent a female flower of a Catasetum, possibly of C. macrocarpum, though the identity remains uncertain until the male flowers appear.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, to which a Silver Flora Medal was awarded. Particularly noteworthy was a beautiful example of Miltonioda Harwoodii with four flowers, in which the characters of Miltonia vexillaria and Cochlioda Nœtzliana are combined. It has greatly improved since it was figured at page 233 of our last volume. It also included a beautiful series of Læliocattleyas, the fine Zygopetalum Roeblingianum, Oncidium incurvum album, O. tigrinum, O. Lanceanum, Schombocattleya spiralis, some good Odontoglossum grande, O. × illustrissimum, very handsomely blotched with violet-purple, some good forms of Cattleya × Iris, × Venus, × Chamberlainiana, Dowiana, &c. An Award of Merit was given to C. × Luegæ (Enid × Dowiana Rosita), a very large and handsome flower, with magneta-rose sepals and petals, and a rich purple lip with some yellow veining in the throat.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a very fine group, including some good forms of Læliocattleya Walter Gott (C. bicolor × L.-c. bletchleyensis), L.-c. Binoti, Cattleya × Venus, C. × Davisii, and a curious little species collected in the C. Rex district of Peru, allied to C. luteola, and called C. Abeliana, the rare Cœlogyne Micholitzii, Cœlia macrostachya, Lycaste Skinneri, Catasetum Christyanum, Dendrochilum latifolium, Brassocattleya Rowena and Cordelia, Sophrocatlælia Medeia, Masdevallia calura, Odontoglossums, &c. An Award of Merit was given to Phaius Cooperi, a striking species, with dark red-brown sepals and petals arranged like a fan, and a whitish lip with some yellow and purple in the throat.

Messrs. Stuart Low & Co., Enfield, also received a Silver Flora Medal for a large and handsome group, including some good Oncidium Marshallianum, varicosum, oblongatum, longipes, microchilum, and carthaginense, some well-flowered Vanda Kimballianum, Zygopetalum maxillare with four spikes, a good plant of Ionopsis paniculata, Bifrenaria tetragona, Cattleya velutina, × Maroni, × Fabia, × Adula, Houlletia Brocklehurstiana, Cœlia macrostachya with three spikes, two good Cycnoches maculatum, Brassocattleya Leemanniæ and Pocahontas, Cypripedium × Rossetti, Miltonia × Bleuana magnifica, Dendrobium sanguinolentum, Cirrhopetalum biflorum, Odontoglossum × Rolfeæ, Masdevallia muscosa, cucullata, ephippium, and others.

Messrs. Wm. Bull & Sons, Chelsea, received a Silver Banksian Medal for a good group, including a number of Cattleya × Pittiana, × Adula, and × Greavesiæ, C. McMastersii (Mendelii × Schilleriana), with cream white sepals and petals, and the front lobe of the lip purple, Catasetum fimbriatum, Cypripedium × Tautzianum, and a light-coloured form of Odontioda Wilsoni (C. vulcanica × O. Pescatorei).

Messrs. Mansell & Hatcher, Rawdon, Yorks, received a Silver Banksian Medal for a good group, including forms of Cattleya × Iris, × Armstrongiæ, and × Mrs. Pitt, a few good Odontoglossum grande, Vanda Kimballiana, Oncidium Kramerianum, Anguloa uniflora (eburnea), Zygopetalum rostratum, Cypripedium Charlesworthii, C. × Baron Schröder, C. × Rossetti, Lælia monophylla, L. × rubens superba, Brassocattleya Leemanniæ, &c.

Messrs. Stanley & Co., Southgate, sent eight plants of the pretty Lælio-cattleya Walter Gott, and five of Cattleya iridescens, both showing much variation in colour.

Messrs. J. & A. A. McBean, Cooksbridge, showed a good dark form of Cypripedium × Germaine Opoix.

Manchester and North of England Orchid.

A meeting of this Society was held at the Coal Exchange, Manchester, on September 8th, when the following members of the Committee were present:—Messrs. E. Ashworth (Chairman), R. Ashworth, Arthur, Ashton, Bolton, Cowan, Crombleholme, Cypher, Holmes, Keeling, Lee, Parker, Smith, Sander, Thorp, Ward, and Weathers (Hon. Sec.). There was a moderate display of plants, members having possibly not got into working order after the holiday interval.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), was awarded a Silver Medal for a group of Cypripediums, most of which were well-known hybrids and had previously obtained awards at Manchester. One of the most striking plants in the group was the rare C. Charlesworthii var. Bromilowianum, which—although one would imagine it to be a delicate subject—does well in this collection. C. × Lord Ossulston was also shown in nice form.

Rev. J. Crombleholme, Clayton-le-Moors, exhibited a small collection of Cypripedes, which included a distinct form of C. × Chapmanii, named var. lucidum (Vote of Thanks).

J. McCartney, Esq., Bolton (gr. Mr. Holmes), exhibited Cattleya × Minucia, Hey House var., and Cypripedium × Donald McCartney, both of which received Awards of Merit.

The Liverpool Orchid and Nursery Co., Gateacre, staged a group to which a Bronze Medal was awarded. Cattleya × Rosette, a hybrid between C. Schilleriana × C. Mendelii, was voted an Award of Merit.

W. R. Lee, Esq., Plumpton Hall, Heywood (gr. Mr. Woodhouse), sent a group of good plants, several entirely new and all of choice quality. This exhibitor is in competition throughout the present session for the "Richard Ashworth Cup," which is for general excellence. Odontoglossum × illustrissimum (O. × Lambeauianum × O. ardentissimum var. "The Countess"), and Cypripedium × Rossetti var. Leeanum, the latter a fine form, were awarded First-class Certificates. Cypripedium × Hitchinsiæ,

Plumpton var., Cattleya × Venus, Plumpton var., C. × V. Leeana, C. × Oriel (C. × Mantinii nobilior × Hardyana), C. × Crown Prince (C. Leopoldi × Hardyana), and C. × Adula var. wivelsfieldensis were all voted Awards of Merit.

Mr. J. Birchenall, Alderley Edge, exhibited Acineta chrysantha (Award of Merit) and Chondrorhyncha fimbriata.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a group of Cattleyas and Lælias, principally hybrids, in which there was a fine selection of forms of Cattleya × Iris. The whole group had a most telling effect, and richly deserved its award of a Silver Medal.

Col. J. Rutherford, Blackburn (gr. Mr. Lofthouse), who is also competing in the "R. Ashworth Cup," staged a good miscellaneous collection, which included several good Læliocattleya hybrids, the albino form of Odontoglossum Rossii (var. immaculatum), and a fine Cattleya Schilleriana.

Contributions of plants were also staged by Messrs. Charlesworth & Co., Haywards Heath, E. V. Low, Vale Bridge, and Mr. W. Shackleton, Great Horton, Bradford.

At the meeting held on September 22nd the Committee was present as follows:—Messrs. E. Ashworth (Chairman), Arthur, Bolton, Crombleholme, Cypher, Holmes, Lee, Parker, Stevens, Thorp, Ward, and Weathers (Hon. Sec.).

Messrs. J. Cypher & Sons, Cheltenham, were awarded a Silver Medal for a group of plants, which included several Cattleya hybrids, some nice forms of C. × iridescens being particularly noticeable, Cypripedium × triumphans, Sophrocatlælia Medeia, a good form of Vanda cœrulea, and a nice sprinkling of Pleione Wallichiana.

W. R. Lee, Esq., Heywood (gr. Mr. Woodhouse), again exhibited some good plants. In the group were Odontoglossum × W. R. Lee, a hybrid stated to be O. × amabile × ardentissimum, a flower of fine proportions and well marked, the ground work being white with purple markings thickly placed (Award of Merit). Miltonia × W. R. Lee, parentage unknown, but evidently M. × Bleuana and M. vexillaria Leopoldi were responsible, also received an Award of Merit. Cattleya × amabilis (C. speciosissima var. Stanleyi × C. × Fascinator var. albens), a new and very pretty hybrid, was awarded a First-class Certificate, C. × Phrygia (Portia × Enid), C. × Priam (C. Harrisonæ × callistoglossa), Sophrocatlælia Olive (Psyche × Enid), and Cypripedium × plumptonense (C. × Leeanum Clinkaberryanum × Hitchinsiæ) received Awards of Merit. Nine points were awarded to the group in "R. Ashworth" Competition.

Col. J. Rutherford, Blackburn (gr. Mr. Lofthouse), was awarded five points in the "R. Ashworth" Competition. This group consisted of a

general display of Cattleyas and hybrids with Cypripediums and Odontoglossums.

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), was awarded a Silver Medal for a group, consisting principally of Cypripediums, such varieties as C. × Maudiæ, C. × Daisy Barclay, and C. insigne Sanderæ being shown in good form.

Messrs. Stanley & Co. Southgate, staged a collection of Cattleya × iridescens, all from the one seed pod, but no two of which were similar. This hybrid is a charming and showy addition. C. × iridescens var. splendens received an Award of Merit.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), exhibited Odontoglossum × excellens, Auburn House var., its characteristic being the very distinct and beautifully marked lip (Award of Merit).

Messrs. Charlesworth & Co., Haywards Heath, received an Award of Merit for Cattleya × Mrs. Pitt, Charlesworth's var., intensely dark in colour.

Mr. J. Robson, Altrincham, exhibited Cypripedium × Rolfei, C. × Priam, and a good Odontoglossum hybrid, with O. crispum var. Graireanum evidently one of its parents.

Rev. J. Crombleholme, Clayton-le-Moors, exhibited Cypripedium × Lord Ossulston var. seraphicum.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), exhibited a new and quite distinct Lælia called L. × W. Thompson. In the formation of the flower it resembled L. Jongheana, the sepals and petals were pure white, and the labellum an intense chrome yellow, beautifully fringed and not unlike a small lip of Cattleya Mossiæ var. Wageneri (First-class Certificate).

J. McCartney, Esq., Bolton (gr. Mr. Holmes), sent a couple of Cattleya hybrids.

E. Ashworth, Esq., Wilmslow (gr. Mr. Holbrook), was awarded a Cultural Certificate for a well-grown plant of Cattleya × Maroni.

The Liverpool Orchid Co. and Mr. W. Shackleton were accorded Votes of Thanks for small displays.

Cycnoches at Kew.—Five species of this interesting genus are flowering at Kew. C. maculatum is bearing male and female flowers on different plants, the latter a spike of three flowers. A plant of C. Egertonianum, which recently produced four female flowers, is carrying a male inflorescence. C. stelliferum, C. ventricosum, and C. chlorochilon are also in bloom, all the flowers being males. They form a very interesting series, and it is curious to note how much longer the very fleshy female flowers remain fresh than the more membraneous male flowers.

ORCHIDS AT VALE BRIDGE, HAYWARDS HEATH.

ABOUT a year ago, on the dissolution of the old firm of Messrs. Hugh Low & Co., Mr. E. V. Low established himself in business at Vale Bridge, Haywards Heath, having purchased the Orchid Nursery vacated by Messrs. Charlesworth & Co., on removing to their new establishment near by. On calling there the other day we found a very fine collection of established plants, with a good many of the inevitable seedlings, without which no Orchid establishment now seems complete. The place is pleasantly situated on a sloping bank, facing south, with a lake at the foot, from which the water is pumped up for watering the plants. Nine of the houses are situated on the slope, running east and west, with three or four others above, running north and south.

Cattleyas and allied genera occupy the leading position in the houses first mentioned, and we saw a fine lot of established plants of the principal species, varieties and hybrids, and a large number of seedlings from good crosses, in various stages. A few interesting things were in bloom and sheath, some of which are included in the following notes.

In the first house entered were a number of Cattleya × Iris and × Adula, two of the latter being in bloom and many in sheath, also C. × Atalanta in sheath, with Brassocattleya Dante in bloom. Batches of various well-known plants were pointed out. In the next house were a lot of C. Dowiana aurea crosses, including a home-raised C. × Hardyana in sheath, half-a-dozen C. labiata alba in sheath, with C. Eldorada Wallisii in bloom. A lot of other white Cattleyas were pointed out, with C. × Thurgoodiana in bud, and a good batch of Læliocattleya callistoglossa and various others in thriving condition.

The next house, it was remarked, contained mostly white Cattleyas, including seventy white labiata, and a nice batch of C. × Dusseldorfii Undine, and various seedlings. C. Gaskelliana alba was in flower, and C. × Maggie Rafael in sheath, while a few good plants of Sophrocattleya Doris and several other good things were pointed out. We also saw a few healthy plants of Oncidium pulchellum, with Stanhopea eburnea in bud.

Passing on we found a fine lot of Cypripedium seedlings in thriving condition, also an interesting cross from Lælia tenebrosa, Walton Grange var., and Cattleya seedlings from several good crosses, including five small plants from C. intermedia alba × Lueddemanniana alba, which at present look like true albinos. Mr. Low has made many promising crosses, and some were germinating in the greatest profusion, while others were potted off and were growing freely. Another Cattleya house contained a fine batch of C. × Fabia just beginning to flower, and numerous other good things were pointed out which we must pass over.

On reaching the other houses mentioned we found batches of well-known plants in thriving condition, the first two containing various Cattleyas, Cypripediums, &c., the majority not in bloom, though we noted a few Cypripediums and Cymbidium lancifolium with two spikes.

An Odontoglossum house contained many interesting things, including the striking Dendrobium Victoria-Regina in bloom, two plants of Odontioda Thwaitesii, some Oncidium incurvum album showing for flower, a nice batch of Odontoglossum × Rolfeæ, several of which were in bloom, two O. Croskinneri album in flower, and O. crispum Lady Jane in spike. A few plants of O. c. Pittianum and O. c. Lindeni were pointed out, and we noted a few good plants of Nanodes Medusæ, Cybidium × Holfordianum and × Wiganianum, with batches of Cymbidium insigne and C. Lowianum concolor. A number of seed pods told of hybridising operations in progress.

In a Dendrobium house we saw D. mutabile, together with some good D. superbiens and D. Phalænopsis in bloom, and it is hoped that two capsules of D. P. album self-fertilised may yield a batch of albinos. Plants of D. nobile virginale and other good things were pointed out.

Lastly we may mention a Cypripedium house, containing a very fine lot of healthy plants of choice varieties. A good many interesting things were in bloom, among which we noted C. × Olivia with three fine flowers, C. × Mary Beatrice, very richly coloured, C. × Watsonianum with four flowers, C. × I'Ansoni, with a three-flowered spike, and a very strong plant of C. × James H. Veitch with numerous flowers. There were also several fine plants of Bulbophyllum virescens. The collection is in excellent condition generally, and our rather hasty notes give a very imperfect idea of the many choice things it contains.

FLY WHICH ATTACKS ORCHID SEEDLINGS.

I ENCLOSE, in a glass tube, a few small white maggots, with black heads which destroy Orchid seedlings. I raise a few seedlings, and usually sow on a ball of sphagnum moss, which is enclosed in calico and pushed into a small pot. On this I sow the seed, but this maggot plays havoc with the seed bed, and eats the developing seedlings after they germinate, and before they form leaf or root, by the hundred. This happens a few weeks only after sowing, and the maggots set to work almost as soon as the calico rots, and both calico, moss, and developing seed becomes a complete upheaval with the maggots. With a lens I have watched them churning the little green developing seeds up in a heart-rending manner. How long it remains a maggot I do not know, but I have seen many of them in the pupa or chrysalis stage in the moss, and these develop into the perfect fly. I enclose a leaf of Pinguicula caudata on which many of these flies have been caught.

The question is, can I kill the maggots without destroying the seedlings? If so, how am I to proceed? I have only found it in the warmest houses, and only where I have sown the seed on sphagnum as stated, and that is where it appears to breed and do most harm. I have hundreds of seedlings raised this year, and had it not been for the ravages of this fly—that must deposit its eggs in the moss—I might have had thousands. You will also see, I believe, a sort of dark-coloured eel worm, but I have not noticed any damage to developing seedlings by it, though I have often found them in the moss. Any information you can give me through the *Orchid Review*, will be thankfully received.

H. A. INNESS.

[We have several times had complaints about this maggot, and believe that no method of checking it has yet been discovered. The most hopeful method which we can suggest is to prevent the flies from laying their eggs in the compost, if it can be done, and this raises the question as to when the eggs are laid. If the fly is the one so commonly captured by the Pinguicula, there would seem to be a constant source of infection in our houses. We have submitted the specimens to an expert, in the hope of getting them identified, as a knowledge of the insect and its habits may disclose some method of dealing with it.—ED.]

THE HYBRIDIST.

ONCIDIODA CHARLESWORTHII.—The flowering of a very interesting generic hybrid between Cochlioda Nœtzliana ♀ and Oncidium incurvum ♂ in Messrs. Charlesworth's establishment at Haywards Heath was mentioned at page 266, and the plant was exhibited at the R.H.S. Meeting held on August 30th. In habit and in the slender erect spike it recalls a much dwarfed edition of the Oncidium parent, but the flower is modified in structure and colour. The flowers are on the whole most like the Oncidium in structure, but the sepals and petals are broader, and the lip shorter, while the colour may be almost described as carmine red. It will be interesting to see the plant when it becomes stronger.

LÆLIOCATTLEYA × TIMON.—A pretty little hybrid raised in the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, it is said from Cattleya bicolor Grossii × Læliocattleya Ingramii. The flowers are most like those of the Cattleya parent in shape, and the sepals and petals are light purple in colour, while the lip is much deeper purple, with the white blotch on the isthmus so characteristic of the seed-bearer. Flowers from two plants are sent, one of which has small but distinct sides to the lip, the other is totally without side lobes, and the white blotch on the isthmus is narrow and less distinct. Very similar flowers from another plant were sent last year, when we suspected the parentage, but Mr. Mackay remarks, "we have not the least doubt about the parentage." The

difficulty is that we cannot find the least trace of Cattleya Dowiana anywhere, and as that species and Lælia Dayana were the parents of L.-c. Ingramii one would expect to find it. It is possibly a case of dissociation, in which the characters of L. Dayana only are represented. It is not a pure Cattleya, for there are four small pollen-masses, as in Læliocattleya. Of existing hybrids it is most comparable with L.-c. Binotii (C. bicolor × L. pumila). Other seedlings should be watched.

CATTLEYA × THE CANON.—A flower of this handsome hybrid is sent from the collection of Francis Wellesley, Esq., Westfield, Woking, by Mr. Hopkins, who remarks: "It is one of our seedlings. We are not sure about its parents, but I should say C. × Mantinii × aurea." This seems likely, for we can only trace the character of C. Bowringiana and C. Dowiana aurea, yet the flower is much larger than C. × Mantinii, and the petals and lip much broader, and approaching C. D. aurea in shape. The flower is rich purple, with much yellow veining in the throat.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during October, on the 11th and 25th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on October 6th and 20th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m. The following meeting is fixed for November 3rd.

At the Annual Show of the Carlisle Horticultural Association, held on August 31st and September 1st, Sir Benjamin Scott, Linden House, Stanwix (gr. Mr. G. Accleton), staged a very nice and varied group of Orchids, for which a Silver Medal was awarded. The Orchids, which were well displayed with ferns, included some good Cattleyas, viz., C. × Pittiana Champion, × Atalanta, Sander's var., × Ella, Sander's var., Læliocattleya bletchleyensis, Lælia majalis, a number of fine Dendrobium Phalænopsis, some good Cypripediums, including a very fine C. × Maudiæ, and a number of beautiful Odontoglossum spikes, which formed a very attractive display, and included O. × altum, × Adrianæ, maculatum, a very fine × Harryano-crispum, and a good well-spotted crispum. The plants were all in splendid condition and showed very careful culture.

Mr. J. Taylor, for many years representing Messrs. Sander & Sons, St. Albans, will in future represent Messrs. Mansell & Hatcher, of Rawdon, Yorkshire.

The Orchid Exhibition held at Berlin on June 8th, 1910, is well illustrated in the issue of *Orchis* for July 1st, by a series of eight plates, including the groups exhibited by Herrn Theodor Franke, Emil Mosse, Dr. Alfred Berliner, Carl Fredr. v. Siemens, Prof. Dr. Otto N. Witt, and Otto Beyrodt.

ORCHID PORTRAITS.

CATTLEYA × ADULA, VALE BRIDGE VAR.—*Gard. Mag.*, 1910, p. 683, with fig.

CATTLEYA × RHODA, FAIRLAWN VAR.—*Gard. Chron.*, 1910, ii. pp. 174, 189, fig. 67; *Journ. Hort.*, 1910, ii. p. 219; with fig.

CYPRIPEDIUM × LATHAMIANUM.—*Orchis*, iv. t. 21.

CYPRIPEDIUM MASTERSIANUM.—*Orchis*, iv. t. 22.

DENDROBIUM VEXANS, DAMMERROMAN.—*Orchis*, iv. pp. 85, 86, with fig.

DISA GRANDIFLORA.—*Gartenflora*, 1910, p. 374, fig. 41.

LÆLIOCATTLEYA GOLDEN ORIOLE VAR. TIGRINA.—*Gard. Mag.*, 1910, p. 707, with fig.

MILTONIA VEXILLARIA VAR. SNOWFLAKE.—*Gard. Chron.*, 1910, ii. p. 216, with suppl. fig.

MILTONIA VEXILLARIA VAR. VIRGINALE.—*Gard. Chron.*, 1910, ii. p. 216, with suppl. fig.

SELENIPEDIUM × SEDENI.—*Orchis*, iv. t. 20.

SOBRALIA MACRANTHA ALBA.—*Gard. Chron.*, 1910, ii. pp. 182, 183, with suppl. fig.

VANDA CŒRULEA, WESTONBIRT VAR.—*Journ. Hort.*, 1910, ii. p. 195, with fig.

VANDA SUAVIS.—*Orchis*, iv. t. 18, fig. 1.

VANDA TERES.—*Orchis*, iv. t. 18, fig. 2.

ZYGOPETALUM MAXILLARE, Lodd.—*Orchis*, iv. p. 84, t. 19, and coloured plate.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].*

R.B.—Nos. 6 and 7 are light coloured forms of Dendrobium Phalænopsis. A note on the others is held over.

H.G.A.—Epidendrum pristes.

E.D.—Identification not quite certain, but either Dendrobium tenuicaule, Ridl., or a nearly allied species. Letter follows.

Photographs received, with thanks.—R.B., J.B.

J.G., W.S., A.C., J.C.B.F., and others.—Notes are unavoidably postponed through pressure on our space.

J M.—We should like to see the cross repeated.

ONE AND ALL GARDEN BOOKS.—Received from the Agricultural and Horticultural Association, 92, Long Acre, London, W.C. *Mushrooms*, by R. Lewis Castle. Price one penny, and well illustrated.

CATALOGUE RECEIVED.—Illustrated Catalogue of Established Orchids issued by Messrs. Duchesne & Lanthoine, Watermael, Brussels.

ERRATUM.—Odontoglossum × Mauritania, described at page 286, should have been O. × Maritana.

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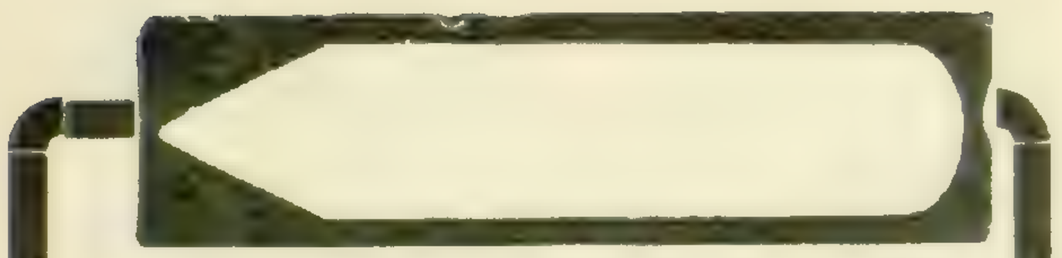

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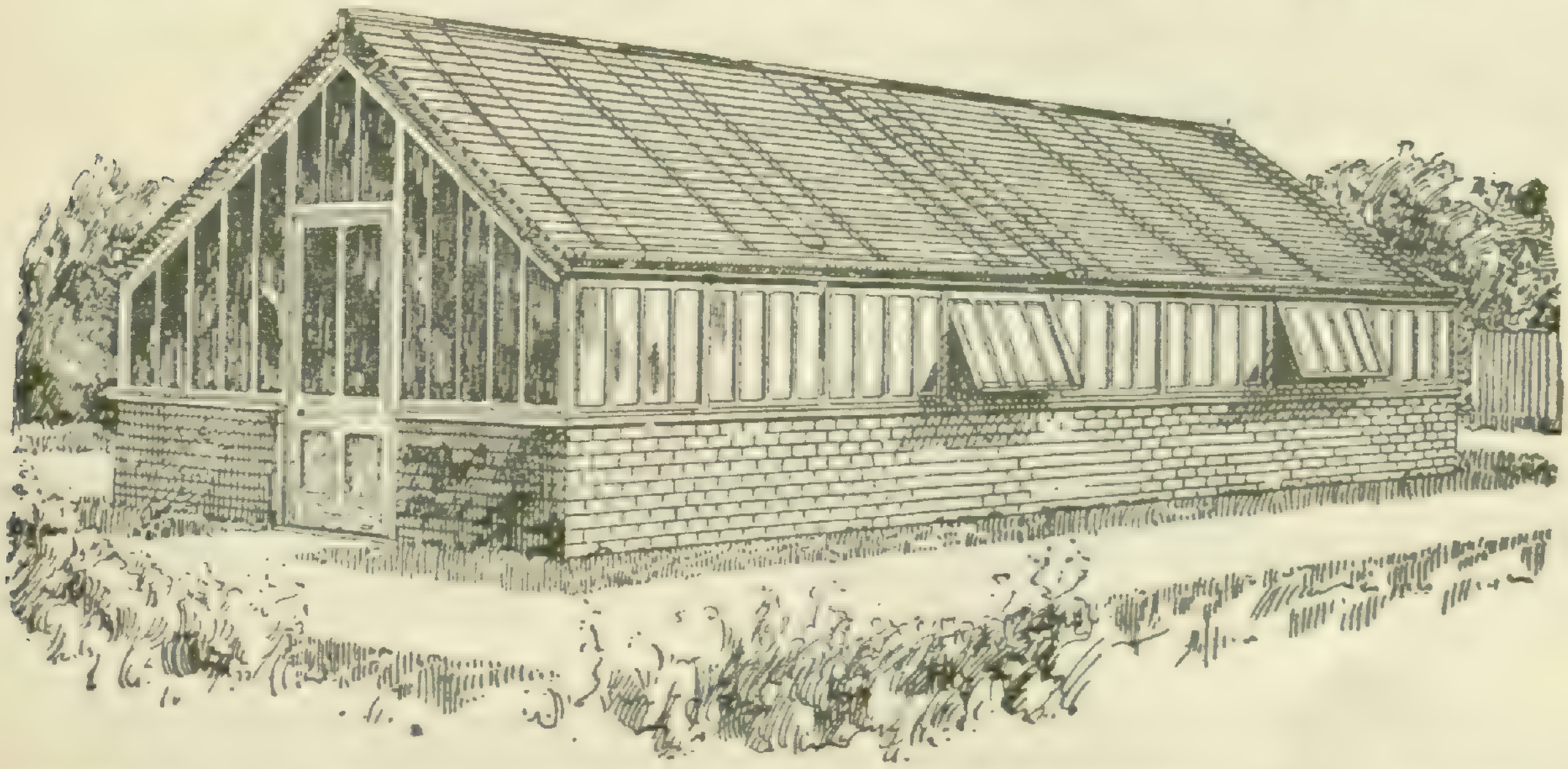

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VOL. XVIII.] NOVEMBER, 1910. [No. 215.

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An Illustrated Journal of Orchidology.

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VOL. XVIII.] *NOVEMBER*, 1910. [No. 215.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 294.)

THE interesting subtribe Stanhopieæ follows Cyrtopodieæ, and now includes a few genera which had been placed in the latter group and elsewhere by Bentham. Catasetidæ, however, which had been included by Bentham, is here considered distinct. Stanhopieæ forms a very natural group, and includes a large number of showy garden species. The plants are epiphytes, with ovoid, often large pseudobulbs, terminating in one or few, usually large, plicate or prominently ribbed leaves. The scapes are leafless, pendulous or sometimes erect, often with rather large flowers, and the lip fleshy, sometimes very complex in structure, but without a spur. The pollinarium has generally a well-developed slender stipe. The group is exclusively American, ranging from Mexico to Peru and South Brazil, and as here defined contains about 17 genera and over 130 known species. The line of demarcation between Stanhopieæ and Cyrtopodieæ is not easy to define, but is best drawn so as to include Lacæna, Lycomorium and Gongora in the former. Cirrhæa, placed by Bentham in Notylieæ, is also more nearly allied to Gongora, while Stenia and Schlimmia are out of place among the Maxillarieæ.

Stenia has a distinct foot to the column, to which the lateral sepals are united, forming a pouch, which encloses the fleshy saccate lip, the latter having fringed teeth at the base, recalling those of Sievkingia. Two or three species are known, natives of Guiana and Colombia. Schlimmia has also a foot to the column and a saccate base to the lateral sepals, and contains about three Colombian species, which are seldom seen in cultivation. Cœliopsis contains a single species from Panama, and bears buff-coloured flowers in short rounded heads, and is obviously allied to the preceding genera. Reichenbach regarded it as near Sievkingia. Kegelia is an imperfectly known genus, a native of Guiana, said to be allied to Lacæna. Sievkingia, which apparently contains Gorgoglossum, Lehm., consists of about four species, natives of Costa Rica, Colombia and Guiana. The flowers are borne in short descending racemes or heads, and the flowers are yellow and rather membranous, with a saccate lip, or in one case a fringed

lip and petals. One or two of the species have appeared in cultivation, but are very rare. Trevoria is a very interesting Andine genus of three species, one of which was figured at page 296, where its character and history may be found.

We now come to a group of genera whose characters are better known, and which are more frequently met with in cultivation. Lacæna consists of two Central American species, whose flowers are borne in long pendulous racemes, with connivent greenish white fleshy sepals and petals, and a three-lobed lip, the front lobe being expanded, purple, and somewhat reflexed. Of Lueddemannia about four species have been described. The species are Colombian, and bear long pendulous racemes of yellow and brown flowers, not unlike those of Lacæna in shape, but with a different lip. The genus was formerly confused with Cycnoches, but is very different in every respect. Acineta is nearly allied, and ranges from Mexico to Colombia, about eight or ten species being known. The flowers are fleshy and nearly globose in shape, with a very rigid three-lobed lip and a large fleshy crest. The flowers are yellow or whitish, sometimes spotted with brown. Several species are familiar in gardens. Lycomorium contains a single Colombian species, and is closely allied to Acineta in structure and appearance. It is not yet known in cultivation.

Peristeria contains about ten Colombian and Central American species, most of them bearing short pendulous racemes of flowers, but in the well-known P. elata, the Dove Orchid, the flowers are borne in erect spikes. The flowers differ from Acineta in having the front lobe of the lip articulated and mobile. Houlletia is a native of Central America, Colombia and Brazil, and contains about ten species, two or three of which are well known in gardens. The flowers are rather less fleshy than in the preceding genera, and the side lobes of the lip very narrow and acute, while the front lobe is articulated, as in Peristeria. Neomoorea irrorata is a remarkable Colombian monotype which was figured as the frontispiece to our twelfth volume. It is allied to Houlletia, but in this case the whole lip is articulated, and owing to its shape and markings recalls a butterfly attached by its head.

The next three genera, though much allied in habit, are very distinct in structure. Polycycnis contains about five species, natives of Central America and Guiana. The flowers are borne in drooping racemes, and have rather narrow, membranous sepals and petals, and a three-lobed lip, with a very long slender column, recalling that of Stanhopea. Cirrhæa contains four or five Brazilian species, much like Gongora in habit, but with a rather different lip, the side lobes being narrow, elongate, and strongly reflexed, and the front lobe small and sometimes saccate in shape. Bentham places the genus near to Notylia, where it is clearly out of place. Gongora

is a polymorphic and very remarkable genus of over twenty species, and ranges from Mexico to Brazil and Peru. The flowers are borne in pendulous racemes, and the petals are often united to the column for some distance, while the lip is a curious organ, which has been likened to an insect sprawling on its back, or to a chicken trussed for the spit. Several of the species are frequently met with in gardens.

Stanhopea is a remarkable genus, containing upwards of 40 species, and ranging from Mexico to Brazil and Peru. They are common in gardens—indeed most of them have been described from garden materials—and they would be more popular but for the fact that the flowers are rather fugacious. The flowers are produced in short pendulous racemes, and have large membranous sepals and petals, white or yellow in colour, often spotted with reddish purple, and a very complex fleshy lip, the base being variously saccate, the front lobe often articulate, and the side lobes represented by a pair of curved fleshy horns, while the column is very long and gracefully curved. Coryanthes represents a further stage in the specialisation of organs, and is one of the most remarkable genera known. It ranges from Mexico to Peru and Brazil, and upwards of a dozen species have been described. They closely resemble Stanhopea in habit, and the sepals and petals are very large and membranous, but the lip has been modified in structure to a remarkable degree. It is stalked, and may be compared to a bucket or milking-pail suspended below the flower, with a hood above. And the resemblance is not illusory, for as soon as the flowers expand a pair of oblong glands are seen at the base of the column, which exude water drop by drop into the bucket beneath, while the hood or helmet—from which the genus takes its name—also fulfils a special purpose. The flowers are fertilised by bees, which are attracted by some special tissue beneath the hood, but in alighting on the highly slippery surface they soon fall into the water beneath. Being unable to crawl up the slippery sides, they have to struggle through a narrow opening beneath the apex of the column, in which they invariably bring away the pollen masses. Undeterred by their involuntary bath, they soon fly away to another flower, and, on repeating the process, leave the pollinia behind on the viscid surface of the stigma. It is a remarkable case of adaptation, but the process may invariably be seen whenever the flowers appear in their native habitat. It cannot be seen in our houses because of the absence of the special kind of bee.

Catasetidæ forms another very distinct and natural group, ranging from Mexico to Brazil and Peru, and containing three genera and over 120 species. They are very distinct from Stanhopieæ in habit, in which respect they recall the genus Cyrtopodium, though the flowers are much more highly specialised. It is highly probable that they have arisen from some ancestor having a very similar general structure, while Stanhopieæ arose

from a somewhat different branch. The three genera of Catasetidæ are very much alike in habit, so much so that they cannot always be distinguished when out of bloom. In floral character, however, they are very distinct.

Mormodes contains upwards of thirty species, and is characterised by its hermaphrodite flowers, and the twisted column and lip, which give a peculiar appearance to the inflorescence. The flowers are borne in two rows, those on the left side being twisted so as to face the left, and those on the other side to the right. The lip is narrowed at the base, and much dilated and strongly reflexed or revolute above, where it is firmly pressed down on the pointed apex of the column. The pollinia are forcibly ejected when an insect alights on the flower, and touches a small sensitive portion of the column, this action liberating the stipes which is curved round the rostellum. The one-sided arrangement of the inflorescence affords a clear space for the ejection of the pollinia and their adhesion to the visiting insects. The species vary greatly in colour and detail, and several of them are in cultivation.

Catasetum is a large and polymorphic genus, differing from Mormodes in having unisexual flowers, and in the absence of twisting in the column and lip. Upwards of eighty species have been described, and they fall into four natural sections. The females are remarkably different from the males in structure, and were formerly placed in a separate genus (Monachanthus) by Lindley. A second group was separated by Lindley, under the name of Myanthus, which is now considered to form a section of Catasetum only. It may be remembered that Darwin, when pointing out that Monachanthus was the female of Catasetum, thought that Myanthus represented a third or hermaphrodite condition, which is now known to be erroneous.

The characters of the four sections of Catasetum may be briefly pointed out. In Pseudocatasetum the lip is hood-shaped and superior, often with a ciliate margin, while the column is short and broad, but without antennæ, though the pollinia are forcibly ejected when a sensitive portion of the column is touched. The female is very similar to the male in appearance, but rather larger and without pollinia. The principal species are C. discolor, C. ciliatum, and C. longifolium, while the imperfectly known C. cassideum is suspected to be the female of one of the two former. The section Ecirrhosæ contains C. Russellianum, thylaciochilum, Warscewiczii, scurra, and roseum, and the male sex only is known. In these the lip is inferior, and variously expanded, while the column is without antennæ, though in C. Russellianum the face of the column is sensitive, and when touched the stipes immediately drops down, and the gland would thus become fixed to the back of the visiting insect.

In Eucatasetum the lip is uppermost and more or less galeate in both sexes, while the rostellum of the male is prolonged into a pair of antennæ,

which when touched cause the ejection of the pollinia, sometimes to a considerable distance. In the female the column is short and stout, and without antennæ. In some of the species only one of the antennæ is sensitive, the other being turned round near the base of the column and functionless. This section contains twenty or more species, C. macrocarpum and C. maculatum being familiar examples.

The section Myanthus is the largest of the four, and contains a very varied assemblage of species. The females have a galeate superior lip, and closely resemble those of Eucatasetum, but the males have the lip underneath, and variously expanded, lobed and fringed, but never galeate. C. fimbriatum, callosum, and barbatum are familiar examples, and these all have two equal antennæ, which are both sensitive. In another set the antennæ are in different planes, as in Eucatasetum, one being functionless. This set contains C. tabulare, Bungerothii and Christyanum. The diversity between the two sexes is remarkable, and in a large number of species the female flowers are still unknown.

Cycnoches has also unisexual flowers. It is a small genus of about sixteen species, differing chiefly from Catasetum in the structure of the lip and column, the latter, in the males, being elongated and curved, resembling the neck of a swan, whence the name was derived. In the females the column is much shorter. There are two sections, Eucycnoches, in which the lip and perianth are similar in the two sexes, as in C. chlorochilon and C. Loddigesii, and Heteranthæ in which the females resemble those of the other section, but the males are much smaller, with very membranous perianth, and the lip broken up into a small disc with numerous marginal clavate teeth. This set contains about ten species, of which C. maculatum and C. Egertonianum are familiar examples. The history of the genus was given in our last volume (pp. 269-272).

(To be continued.) R. A. ROLFE.

THE DISSEMINATION OF INDIGENOUS ORCHIDS IN BELGIUM.

A VERY interesting paper by M. J. Houzeau de Lehaie, entitled "Observations pour servir à l'étude de la dissémination des Orchidées indigènes en Belgique," has just appeared (*Bull. Soc. Roy. Bot. Belg.*, xlvii. pp. 45-52). About ten years ago the author re-afforested a plot of land of about 30 acres, at St.-Symphorien, near Mons. This land, which consists of old quarries, has a very diversified surface, and the soil consists of compact sandy clay, with considerable deposits of waste calcareous matter. The land has been planted for effect, with numerous glades, and some of the trees are now 30 to 40 feet high. The planting was arranged so as to provide a broad belt to break the winds from the east and north, at the same time affording free

access to the sun and the southerly winds. The land is situated about a mile and a quarter from the Forest of Havre, and part of the soil is of the same nature, but much more humid, and doubtless without calcareous matter, because heather (Calluna vulgaris) is found there. On the west the next woods are those of Baudour, which are situated about six miles away. At the commencement the land only produced a little coltsfoot (Tussilago Farfara), but from that period the author's attention was directed to the appearance and dissemination of indigenous plants, and particularly to the appearance of Orchids, whose culture often presents such difficulties in our gardens. He was not only astonished at the number of individuals and the species which appeared on so small a space, but also at the fact that several of them only occurred at stations some six to ten miles distant. The author gives particulars of the appearance of eight different species, which we may now summarise.

EPIPACTIS LATIFOLIA.—About eight years ago the first plant of this Orchid was found in a hedge of hornbeam, having possibly arrived as a seed attached to the roots of the hornbeam, which had been brought from Namur. It has since spread and multiplied, and now occurs in hundreds, if not thousands, in the woods and glades, in exposed places, and on all the soils. This species proves very variable in the size and colour of the flowers, the form of the leaves, and in the time of flowering. In 1909 three examples of E. latifolia atrorubens were found. It differs much from the type, having smaller, coloured flowers, which are about over at the end of June, when the type is just beginning to flower.

In 1904, when the largest trees were about 15 to 20 feet high, a specimen of Orchis Morio was found, on sandy clay facing west in half shade. Its nearest station is over three miles to the northward. Three years ago the author found nearly 300 plants of Ophrys apifera on a bare summit, exposed to the east wind, in stony soil, so dry and sterile that the elms could not develop, and where the herbaceous plants are scanty and scorched up in July. In 1909 another stony but less sterile summit produced a smaller colony. Its nearest stations are some six to ten miles to the west and north-west.

In 1907 a tuft of Neottia Nidus-avis was found with six stems, but it has not re-appeared since. Last year about seven examples of Anacamptis pyramidalis were observed. This year about a hundred have been found. The species grew in a wood some six to ten miles to the north-west. In 1909 Listera ovata, Orchis militaris and O. maculata, were detected, the latter common less than two miles to the north.

These eight species of Orchids have thus appeared spontaneously in a very few years, on an area of comparatively limited extent, forming about a fourth of the estate. It is remarked that there are few localities in Belgium

where so many species are found in so small a space, except on some of the moist prairies of Lavaux-St.-Anne, Luxembourg. Several of them have a liking for chalky soil, but this may be only a coincidence, for scarcely a tenth of the whole is calcareous. Lastly, it is remarked that all the Orchids were found on the disturbed part of the ground, to the exclusion of the parts where the soil remains undisturbed. All the species enumerated were found in flower, and must have been there some time before being noticed, which shows that the conditions were favourable. Other old quarries in the neighbourhood were explored, but without finding a single Orchid. In the author's garden, situated at Ermitage, less than two miles away, only two specimens of Orchids are known, namely, Orchis latifolia and Listera ovata, and numbers of European Orchids which have been introduced at different times have disappeared in a few years.

In conclusion the author asks, Were the seeds introduced with the roots of the trees planted, or were they carried by birds or other animals, or by the wind? The presence of trees seems to be correlated with the appearance of the Orchids, but if the latter were introduced adhering to the tree roots a more general dispersal would be expected. On the other hand it is difficult to believe that the wind could carry the seeds to such distances, for the latter are shed from July to September, when the high winds are accompanied by rain. What is the agent and the method of dispersal?

BRAZILIAN ORCHIDS.

AN interesting account of the Orchids of the State of Pernambuco, Brazil, by Consul George A. Chamberlain, of Pernambuco City, appears in an issue of the Consular Trade Report.

"The State of Pernambuco produces a large variety of Orchids, principal among which are Cattleyas labiata, Leopoldi, guttata, and granulosa. Besides these Cattleyas, other species well represented are Burlingtonia fragrans, Oncidium divaricatum, Oncidium Gravesianum, and Miltonia spectabilis Moreliana. Almost all of these are spectacular, and some of them remarkably beautiful, but in trade only the Cattleyas have any importance, and of these, in turn, the labiatas are the most profuse and give the greatest return. They are the large-lipped, flaring flowers of every shade of mauve and pink, centred with magenta and yellow, that have become, during the last few years, a frequent feature of floral decoration at home. They grow generally three, four, and five blooms on a stalk, and their delicious fragrance greatly resembles the odour of Lilacs.

"Of Cattleya labiata, Pernambuco exported about 15,000 plants of eight leaves and upward during the season ending with April, 1909. The plants are gathered at three central points—Caruaru, Garanhuna, and Timbauba.

The method is simple. Buyers representing foreign firms, or a firm on the coast, take up their residence at these points and announce that they are ready to receive plants. The news soon spreads, and on every market day the plants come in, sometimes brought by poor peasants in little bunches along with a goatskin or two and corn for the general market, sometimes brought by regular collectors in large cargoes.

"The plants are immediately sorted according to quality and the number of leaves in good condition. Species other than C. labiata are bought in very small quantities, as the demand for them in the home market is restricted to collectors. The labiatas having less than eight or sometimes seven leaves are discarded, as they are too small for profitable shipment. Their collection is discouraged, as should it be long continued the plant would absolutely disappear from the regions worked. As it is, vandalism has reduced the production of this district enormously, and bids fair to wipe out the trade.

"Plants of eight leaves are received in great quantities, and are paid for at about nine cents apiece. Plants of fifteen leaves or over bring eighteen cents; twenty to thirty leaves, thirty-two cents; thirty to forty leaves, forty-five cents; above forty leaves a special bargain is made for each plant. During the present season an extraordinary plant was brought in, numbering 206 leaves. This plant was bought for about 5 dols. (£1), and is worth in the United States about 150 dols. In full bloom it should bear 500 flowers. Like the Grape cluster of Eshcol, it was carried into market strung on a pole and borne by two men, who said they had brought it forty miles. Cattleya labiata alba is also occasionally found in this district. Its exquisite bloom is snow-white. It is exceedingly rare, one collector having gathered 8,000 labiatas without securing an alba. A good example will sell for as much as 300 dols.

"In spite of such rare finds as these, the returns from the Orchid trade are not great, as there is competition, with heavy expenses. The preparation, transportation, and shipment of plants in the Pernambuco district is not expensive. Correctly packed, the plants will stand thirty to forty days' confinement and remain in good condition. Freight and expenses to New York per average case of eighty plants amounts to about 15 dols. An export duty of about sixty-four cents per 100 plants is charged, and they pay in the United States twenty-five per cent. *ad valorem*."

FLY WHICH ATTACKS ORCHID SEEDLINGS.—The flies mentioned at page 317 have been identified as belonging to the genus Scania, but the species remains uncertain. We should be glad to receive living specimens of the insect, as they are not in very good condition for determination after being captured by the Pinguicula.—ED.

ORCHISERAPIAS COMPLICATA.

UNDER the title "A New Italian Orchid," a figure and notice were published in a recent issue of *Nature* (vol. lxxxiv. p. 104), by Mr. W. Herbert Cox, of what was regarded as "a species of Italian Orchid which has not before been discovered." The author remarked: "When first I found it, I believed it to be Serapias triloba, but, having studied various authorities, I have since come to the conclusion that I was wrong. They all agree that the lip of triloba is crenulated, but in my specimen there is no sign of that. S. triloba is considered to be a hybrid between Serapias Lingua and Orchis papilionacea; although the ground was covered with the former, I could not find a vestige of the latter in the whole of that district. Also, the authorities only give the Riviera as the habitat of triloba, while I found my plant in mid-Italy, near Florence. In my plant the sepals and petals are each very distinct and separate, not joined into a cap, as in all the other varieties of Serapias. It may possibly be a cross between S. Lingua and O. laxiflora, but, even so, it differs much from that pictured in Barla's book. It is a somewhat striking plant, as the flowers are very large in comparison to the rest, both the labellum, sepals and petals being a very vivid shade of colour between pink and purple, the former a little darker." The specimen has now been presented to Kew by Mr. Cox, and, by the courtesy of the Editor of *Nature*, we are able to illustrate it. We may now attempt to clear up its history.

Fig. 20. ORCHISERAPIAS COMPLICATA.

There can be little doubt that the plant figured is a natural hybrid of Serapias Lingua, with which it was found growing, but the second parent is not quite so clear. Orchis papilionacea seems out of the question, for it does not agree with Orchiserapias Barlæ, Camus, now believed to be the hybrid between S. Lingua and O. papilionacea—and Mr. Cox was unable to find a vestige of the latter species. On the other hand, Orchis Morio was found growing with it, and O. laxiflora not far away. I think O. laxiflora is the more likely parent, for the absence of green from the flower of the hybrid, and the spreading sepals and petals are more in agreement. In both S. Lingua and O. Morio the sepals and petals form a hood over the column,

and the character would naturally extend to any hybrid between them. These facts should identify the hybrid with Orchiserapias complicata (Camus in *Journ. de Bot.*, vi. p. 34), which was based upon a plant found at Uhart-Cize, Lower Pyrenees, in 1882, growing among Orchis laxiflora and Serapias Lingua, and described as Orchis Linguo-laxiflora (Bonnet et Richter in *Bull. Soc. Bot. Fr.*, xxix., p. lxiv.). Unfortunately neither drawing nor specimen are available for comparison. In 1855 Timbal-Lagrave published a hybrid under the name of Serapias Linguo-laxiflora (*Mém. Act. Toul.* 1855, p. 299), but in a subsequent Mémoire, dated 1860, he stated that it was a form of S. laxiflora-cordigera, now known as Orchiserapias Nouletii, Camus, and distinct from the one figured. The present one is somewhat comparable with Orchiserapias triloba, Camus (in *Journ. de Bot.* vi. p. 31), a hybrid from Orchis laxiflora and Serapias neglecta, based upon Serapias triloba, Viv., a plant described and figured over a century ago (*Ann. Bot.* i. p. 186; *Fl. Ital. Fragm.*, p. 11, t. 12, fig. 1), when its hybrid origin was not suspected, and there would naturally be a resemblance between two hybrids having Orchis laxiflora as a common parent. Barla gives S. triloba, Viv., as a synonym of S. papilionacea-Lingua (*Barla Ic. Orch.* p. 34, t. 22, fig. 4-8), which would explain Mr. Cox's reference to it, but this is now considered different from Viviani's original plant, and is known as Orchiserapias Barlæ. The name Serapias triloba, however, according to Camus, has been applied at different times to five distinct hybrids between Orchis and Serapias. The two genera appear to hybridise pretty freely in South Europe, where they grow intermixed, and we should like to see a few experiments made with a view to proving the parentage of several very interesting natural hybrids, one of which we are now able to figure. Fifteen distinct combinations between the two genera are enumerated by Camus, though one or two of them are somewhat doubtful, and in these four species of Serapias and seven species of Orchis are concerned. The hybrids, of course, occur where the parent species grow intermixed.

R.A.R.

CATTLEYA DISEASE.

On several occasions we have heard complaints about a mysterious disease which attacks Cattleyas, causing them to decay very quickly, and on one occasion it was a valuable plant of the old C. labiata which succumbed. As this was before the re-discovery of the species, the loss was considerable. We have now received a hybrid Cattleya, affected in a similar way. Our correspondent wrote as follows:—

"We beg to hand you herewith the diseased portions of two bulbs from the same plant of a Cattleya hybrid flowering for the second time this season, the trouble having arisen between the evening and the following

morning, beginning two-thirds of the way up the bulb, and ending at least one inch below the junction of the leaves, which, at that time, showed merely a faint line of rot on one of them. The plant has not been overwatered, nor subject to any improper treatment, but had been to Manchester on show about a fortnight before it fell sick. The plant went down to Manchester packed in a special Show case, and returned in the same way. The plants were found to be undisturbed at both ends, and no other plant has shown the least sign of any injury. We are very desirous of knowing the cause and nature of the disease if possible, as we had one other instance of it some time ago in the case of a valuable albino, which in the same way became ill with the greatest suddenness. As far as can be seen from a surface examination the roots are quite healthy."

The presumption naturally was that the plant had been attacked by some parasitic fungus, but no evidence of this could be found on microscopical examination. It has been suggested that there may be a bacterial disease of Orchids, but there is no evidence that the mischief—whatever it may be—is infectious. We are rather inclined to suspect some local injury, which was not detected until discoloration of the tissues set in. It is hardly possible that any fungous disease could have developed with such rapidity. We publish the information in the hope that some of our readers may be able to throw further light on the matter, and we need scarcely add that any considerable outbreak of this kind would be a very serious matter.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By W. C. PRICE, OAKDENE, WEST DIDSBURY.

THE month of November is generally associated with fog, and is not calculated to make the Orchid grower feel very happy, especially when he is located in the neighbourhood of a large town or city. In the country, a few years ago, fogs were not taken much notice of, as they were said to be pure, and would do no harm. I do not think that theory would hold good at the present day—at any rate in England—for the distance between large towns and cities is not great, and the chemical materials given off from factories and chimneys will travel a very long way in a fog, and must have some deteriorating effect in any part of the country. I know that Dendrobium Phalænopsis, Lælia anceps, and Calanthes will drop their buds and flowers if a fog comes along even in the country.

When a fog occurs shut all the ventilators and keep a slightly warmer temperature, but do not get the pipes too hot, and give all floors and stages a thorough damp down. If this is done the resulting moisture will fill up the laps of the glass and help to keep the fog out. I have tried keeping the houses dry, also moderately damp, but I find that the plants come through much better if the houses are kept saturated as above.

TEMPERATURES should be kept about two degrees lower than the figures given last month.

CATTLEYAS.—The Cattleya house will be gay this month with flowers of C. Bowringiana, C. × Mantinii, C. × John Baguley, C. × Mrs. J. W. Whiteley, and there will still be plenty of C. labiata, and a few C. Dowiana aurea, as well as numerous Læliocattleya and Cattleya hybrids. Where possible, all plants in flower at this time of year, and right through the winter, should be placed in a house set aside for them, so that a drier atmosphere may be given them. The flowers will last much longer, and will not interfere with the proper management of the growing houses, where the flowers would quickly spot and soon go over. If it is impossible to devote a house to the purpose, place them all at one end of the house, and do not damp around them. They look so much better when placed together, and are much more easily compared one with another than when scattered about the houses.

CYPRIPEDIUMS are a most satisfactory class of plants to grow for a continuous show of flower through the winter. They last such a long time in flower, and there are such a number of varieties to choose from, that a first-rate show can be kept up from the commencement of October till the end of April.

At present, in the Cool Cypripedium or Intermediate house there are now in flower C. insigne Harefield Hall var., Sanderæ and albidum, C. × Leeanum magnificum, virginale, Clinkaberryanum, and King Edward VII., C. × Actæus revolutum, Sanderæ, exquisitum, and many others of that section; and in the Warm house, C. × Leander superbum, C. × Priam, C. × Rose, C. × Mrs. G. R. Fletcher, C. × Vidor, C. × Lord Roberts, C. × Zeus, C. × Germaine Opoix and its Westfield variety, C. × Gaston Bultel, var. King Edward VII., C. × Niobe, Westonbirt variety, C. × Princess, C. × Maudiæ, C. × Memnon, C. × Thalia giganteum, C. × nitens-Leeanum var. Hannibal, and many others. The flowers should be kept facing the sun as much as possible, as the dorsal sepals of some varieties are inclined to turn back, and if left with their backs to the sun they naturally curl more, as the strong light draws them, and then one is apt to think that he has got a very poor variety.

Any plants of the summer flowering varieties, such as C. Stonei, C. Sanderianum, C. × A. de Lairesse, C. × Massaianum, &c., should be examined, and repotted if requiring more root space, or if it is desirable to increase the stock of any particular plant it should be divided and potted up at once. As most of these varieties are strong growers they should be allowed plenty of room. A well-rooted plant should be given a shift into a pot fully two sizes larger than the one it is in at present. Water carefully until the roots have got hold of the new compost.

DENDROBIUMS will now practically be at rest. Care should be taken that the bulbs do not shrivel at any time, but, on the other hand, be careful not to give water unless the plant is really in need of it. Some of the earlier-flowering varieties will be showing their flower buds, but should not be hurried in any way, or the buds will turn yellow and drop off, spoiling the floral display for the season.

DISAS.—D. grandiflora, D. racemosa, D. × langleyensis, and D. × Veitchii should now be removed from the cold frame to the cool end of the Odontoglossum house. They should be very carefully watered, and not allowed to suffer the slightest check through lack of it, but should have a good soaking as soon as the soil is dry. Keep as free a circulation of air around them as is possible with safety, and spray them overhead on all favourable occasions. The house they are in should be fumigated lightly every week with Xl.-All fumigating compound, to keep them clear of thrip. They are a beautiful class of plants, and will well repay every attention that is paid to them.

EPIDENDRUM VITELLINUM AUTUMNALIS.—This brilliant variety will now be in full flower, and will last a long time in perfection. When mixed with other Orchids in flower they help to brighten up the group and show the others off. They should have copious supplies of water until the spikes are off, when they must be kept on the dry side until new growth commences, but should not be allowed to shrivel.

LÆLIAS.—L. anceps and its varieties are now fast pushing up their flower spikes, and will soon be making a good show. L. autumnalis and its variety atrorubens, L. albida, and L. Gouldiana are also sending up their spikes. It is a good plan to draw a damp sponge up the spikes occasionally to remove the gummy substance that is generally found upon them, and which sometimes hold the buds and causes them to come deformed. They should have a sufficient supply of water until the flowering season is over, but should not be saturated. L. pumila and præstans are now in flower, and should have copious supplies of water until the flowers are off, when they must be kept much drier at the roots, but should never be allowed to get quite dry. The same applies to L. Dayana, which has just passed out of flower.

LYCASTES.—The various varieties of L. Skinneri, L. aromatica, L. leucantha, L. cruenta, L. lanipes, L. × Mrs. Rogerson, L. × Balliæ, and L. × Luciani have now completed their growth for the season, and many of them are showing their flower spikes, which push from the base of the last made bulb. They should be placed in the Intermediate house for the winter, as they are liable to get the foliage badly spotted if allowed to remain in the Odontoglossum house. They require but little water during the next few months, but should not be allowed to get quite dry at

the roots at any time, or the next seasons growth will come weak, and perhaps the plant will not start at all.

ODONTOGLOSSUMS.—O. citrosmum, having completed its season's growth, should be removed to a light position in the Intermediate house, and only sufficient water given to help them to fully make up their bulbs, which ought to be by the middle of the month. Afterwards they will go for long periods without water, in fact, if properly ripened up, they will go right through the winter, until the spikes are seen pushing from the centre of the young growth, without a drop of water. They must have a very decided rest if they are to be induced to flower. O. bictoniense and its beautiful variety album are now in flower. They should be grown all the year round with O. Uroskinneri at the cool end of the Intermediate house, as the foliage is liable to spot if grown too cool. O. grande, Insleayi and Schlieperianum, now in flower and bud, are also best in the same house whilst in flower, as the flowers soon spot if left in the Odontoglossum house. Plants of O. crispum that were repotted as advised in September will now have got rooted again, and the supply of water may be increased according to requirements. Continue potting any that require it as they become ready, as it is better than leaving them to starve.

THE AMATEUR'S COLLECTION.

AUTUMN is a particularly gay season of the year in the Amateur's collection. Cattleya species and hybrids, Læliocattleyas, Oncidiums, Odontoglossums. the now vast Cypripedium family, and a few other groups offer such a wealth of material that selection becomes a somewhat arduous task.

Among the Cattleyas the fine old C. labiata is now flowering freely, and both the coloured and the rarer white varieties are very effective. As they pass out of bloom, the spathe and the old flower spikes should be cut clean out, as close to the base of the leaves as possible, so that no material is left to decay and pass down into the healthy tissue beneath. Some of the hybrids of C. labiata are very desirable acquisitions, and more easily grown than the species, the beautiful C. × Fabia being especially noteworthy in this connection. The other parent, C. Dowiana aurea, is also in bloom, and is exquisitely beautiful, though not an easy plant to grow under ordinary conditions. C. × Mantinii, the hybrid between C. D. aurea and C. Bowringiana, is one of the best of autumn bloomers, and is now making a fine display, with a few other hybrids of the last-mentioned.

Some of the diphyllous Cattleyas have been flowering well. C. Loddigesii is very varied in its season of blooming, and good forms are always attractive, while several of its hybrids with species of the labiata group are in bloom, and of great decorative value. The hybrids of C. bicolor are very useful at this season, particularly C. × Iris and C. ×

Adula, and there are some recent additions of great promise. So numerous are the hybrids at the present that we can only mention a few that are of proved merit.

Lælia pumila is now making a fine display, and is a plant which takes up very little room, and is of the easiest possible culture. It succeeds best in shallow pans suspended from the roof of the Intermediate house, in the usual compost. A few of its hybrids with the Cattleyas of the labiata group are also good, but are not at all common. Læliocattleyas and Brassocattleyas vary considerably in their flowering period, but a good number are now in bloom and are very beautiful.

Vanda cœrulea and V. Kimballiana succeed well in the Cattleya house, in a light airy situation, and both are now flowering freely and are of great decorative value. The former does not succeed everywhere, but a suitable situation can generally be found, and a plant of such merit is worth an effort to cultivate. The beautiful Dendrobium Phalænopsis is also flowering well and is very beautiful. It requires a warm, light situation, and should be encouraged to grow and flower early, as its flowers are particularly susceptible to fog.

Oncidiums are making a fine display, and one of the best is the pretty light purple O. ornithorrhynchum. It is of moderate size and very floriferous, producing short panicles of numerous flowers. It succeeds well grown in deep pans, suspended from the roof of the Intermediate house, and well-grown plants are now a mass of flowers, and exceedingly graceful. The variety album is equally charming, and forms a very effective contrast to the typical form. O. oblongatum is a much taller yellow-flowered species which is now flowering in profusion, and is very attractive. O. tigrinum is a striking Mexican plant which is also very effective, producing strong spikes of flowers, with yellow and brown sepals and petals and a large yellow lip. O. varicosum and its fine variety Rogersii are also flowering in the greatest profusion, and their bright yellow flowers have been not inaptly compared to a swarm of graceful butterflies. O. crispum, O. Forbesii and two or three other Brazilian species also make a good display in the autumn, and are worthy of more attention. O. cheirophorum is a very dwarf and free-flowering species which is very attractive, and suitable for growing in hanging pans in the Intermediate house. The flowers are rather small though delightfully fragrant, and one cannot help wondering what would be the result of crossing it with some of the large-flowered yellow species, whose chief fault is that in some cases the panicles are rather too tall for a small house.

A good many plants of Odontoglossum crispum flower in the autumn, and the Odontoglossum house is gay with various forms of this popular species, and a number of hybrids, which also seem to flower at very various

periods. Examples of O. Pescatorei and O. × Rolfeæ are also flowering well. O. grande is naturally an autumn bloomer, and is now particularly effective, its large yellow and brown flowers making a grand display where the plants are well grown. It likes a little more warmth than O. crispum, and some growers place it regularly in the Intermediate house during the winter months.

Cypripedes, like Odontoglossums, may be relied upon to give a supply of flowers all the year round, but it is during the autumn and winter that they make their great display. This is largely due to the popularity of the fine old C. insigne, and to the fact that it has now been united by hybridisation with most of the species which flower at the same period, and then recombined with a multitude of hybrids. C. insigne is a host in itself, for there are numerous spotted forms to select from, including the grand Harefield Hall var., and several good yellows, of which Sanderæ is still the best. C. Fairrieanum, now happily accessible to everyone, and the beautiful C. Charlesworthii, are also autumn bloomers, and the latter is unapproached for beauty of colouring, the rose-coloured dorsal sepal and white staminode forming a striking contrast. A batch of this charming little plant is now the brightest feature in the house.

Of hybrids the name is legion. First we may mention C. × Arthurianum (insigne × Fairrieanum), a very graceful flower, and C. × Hitchinsiæ (insigne × Charlesworthii), most like the former parent, but dwarfer and more prettily spotted. Then we have a host of showy things obtained by crossing C. insigne with the hybrids of C. villosum, Boxallii, Spicerianum and others which flower rather later in the winter and spring, and by further crossing the various hybrids with each other. C. × œnanthum superbum, one of the earliest of these complex hybrids, is now flowering freely. It may be described as a mixture of C. insigne, villosum and barbatum, and the combination of colour is very effective. Though now surpassed in beauty by some of its offspring, C. × Milo, × triumphans, × Pollettianum, and × Baron Schröder—all of which are now in bloom—it has the advantage of being within the reach of the most diminutive purse, which is sometimes a consideration. The superb hybrids Germaine Opoix and Gaston Bultel are also believed to be derived from C. × œnanthum on one side and C. Fairrieanum on the other, though they are so distinct from C. × Baron Schröder as to have caused a doubt whether they can have the same parentage. These perhaps should not be mentioned under this heading, for the price is rather prohibitive at present. But there are now hosts of hybrids containing more or less C. insigne in their parentage which are just as easily grown, and the number is increasing every year. Hybridisation and selection are effecting such improvements that there is little likelihood of the group declining in popularity.

PAPHIOPEDILUM CHARLESWORTHII VAR. KARTHAUSII.

THE annexed figure represents a very large and handsome variety of Paphiopedilum Charlesworthii which has flowered in the establishment of Mr. C. F. Karthaus, of Potsdam, Germany, and is reproduced from a photograph sent by Mr. R. Blossfeld, who remarks that the flowers are of enormous size, and the dorsal sepal very rich in colour and measuring three inches and an eighth across. Another point that strikes us is the very

Fig. 21. PAPHIOPEDILUM CHARLESWORTHII VAR. KARTHAUSII.

broad petals, and their apparent shortness, though the latter may be due to the great breadth of the dorsal sepal. The flower has a nearly circular outline. It is a remarkable variety, probably one of the finest which has yet appeared of this beautiful species.

A fine typical flower of the species is sent from the collection of Sir Benjamin Scott, Linden House, Stanwix, Carlisle, with the following

interesting note: "I send you a flower of Cypripedium Charlesworthii which has been grown on the method recommended by Dr. Miles Johnston in a recent number of the *Orchid Review* (p. 227). My gardener had the pleasure of a chat with him about a year ago, and he subsequently sent me a written account of his method of cultivation. This was some time before his interesting article in the *Review*. We at once adopted his method, and now that my plants are flowering I am struck with the success we have achieved. We looked upon this Cypripedium as a difficult one to grow before adopting Dr. Johnston's method, but now the plants are beautiful to look at, and the roots are filling the pots most vigorously. I send you a specimen flower, which, to my mind speaks volumes for the success of Dr. Johnston's method of treatment."

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 15th last, when there was a very fine display of Orchids, and the awards consisted of seven medals, one First-class Certificate, and four Awards of Merit.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), staged a choice group, to which a Silver Flora Medal was awarded. It contained a fine series of Cattleya × Fabia, some good examples of C. × Iris and C. × Adula, three plants of Brassocattleya Leemanniæ, Lælia pumila alba, a selection of Odontioda Bradshawiæ, O. Charlesworthii, and others.

Lt.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander), received Awards of Merit for Læliocattleya Golden Oriole var. superba (L.-c. Charlesworthii × C. Dowiana aurea), a very pretty variety, with canary yellow sepals and petals, and a rosy crimson lip, with an orange-coloured disc and some yellow veining in the throat, and for L.-c. Ortrude magnifica (L. anceps × C. Dowiana aurea), a very fine form, having cream white sepals and petals tinged and veincd with rose-purple, and a crisped claret-coloured lip, with traces of yellow veining in the throat. He also sent L.-c. Arethusa (C. Harrisoniana × L.-c. exoniensis), bearing a splendid spike of ten flowers.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received an Award of Merit for Catasetum fimbriatum aureum, a distinct form, having pale green sepals and petals spotted with rose, and the lip green with a very large deep yellow centre.

Mrs. Norman C. Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Odontoglossum × Clive, a handsome hybrid with reddish claret flowers, and Cypripedium × Sibyl punctatum (Francesiæ × Fairrieanum), a prettily spotted flower.

Miss Violet Fellowes, Shotesham Park, near Norwich (gr. Mr. Smith),

sent Cypripedium Charlesworthii var. Violet Fellowes, a fine form with a pale rose dorsal sepal.

M. Firmin Lambeau, Brussels, sent Cypripedium × Fairtisii (Curtisii × Fairrieanum), about intermediate in character.

Captain J. F. Laycock, Wiseton, Bawtry (gr. Mr. Musk), sent Cattleya × Adula, Laycock's var., with bronzy orange sepals and petals and a crimson lip.

Sir William Marriott, Down House, Blandford (gr. Mr. Denny), sent a hybrid called Cattleya × peckaviensis (Aclandiæ × Schilleriana), having rose-pink flowers spotted with purple, but the Committee thought the flowers were too small for the parentage named.

Lady Audley Neeld, Grittleton, Chippenham (gr. Mr. Pitts), sent a hybrid of Cypripedium Fairrieanum.

Edward Roberts, Esq., Park Lodge, Eltham (gr. Mr. Carr), sent Cypripedium × Venus, Park Lodge var., a pretty white flower with a few purple dots on the dorsal sepal.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, to which a Silver Flora Medal was awarded. The centre consisted of a lot of Epidendrum vitellinum autumnale, bearing numerous spikes of brilliantly-coloured flowers, and round it were numerous good Cattleyas and Lælio-cattleyas, including C. × Rhoda, C. × Venus, L.-c. Golden Oriole, and others, the beautiful Lælia pumila alba, Polystachya paniculata, with two good panicles of reddish orange flowers, Trichopilia nobilis, Eria stellata, some fine Dendrobium formosum, some good Odontioda Bohnhoffiæ, Odonto-glossum × Dora, a beautiful white flower regularly blotched with purple, and other good things. An Award of Merit was given to Cattleya × Basil (Enid × Mantinii), a large and handsome flower, with purple-rose sepals and petals, and a deep ruby-crimson lip.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a bright group, including some well-bloomed Dendrobium Phalænopsis, some good Cattleya Bowringiana, C. × Ashtoni, C. × Mantinii magnifica, Cypripedium × Milo, × triumphans, × Niobe, and × Olivia, Odontioda Charlesworthii, two good Stanhopea eburnea, Camaridium ochroleucum, Brassia Lawrenceana, some good Odonto-glossums, &c.

Messrs. Stuart Low & Co., Enfield, received a Silver Flora Medal for a fine group, including a number of good Oncidium varicosum, O. pulvinatum, O. tigrinum, O. incurvum album, O. superbiens, O. phymatochilum, O. oblongatum, Angræcum articulatum, Bulbophyllum Dearei, Vanda Kimballiana, Zygopetalum maxillare, Cypripedium × Richmanii, C. × Actæus, C. × Maudiæ, Cirrhopetalum appendiculatum, C. Roxburghii, Trichopilia fragrans, Cattleya × Maggie Rafael, × Fabia, × Iris, and others, Odonto-

glossum grande, Dendrobium formosum, Anguloa virginalis Turneri, Læliocattleyas, &c.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a very fine group, including some good Cattleya Bowringiana, C. × Hardyana, C. × Fabia, C. × Peetersii, C. × Parthenia, Princess Clementine, C. × Iris, C. × Adula, Læliocattleya Walter Gott, L.-c. Phœnix, L.-c. Wilsonæ, Brassocattleya Thorntoni, Bulbophyllum Medusæ, the remarkable B. Ericssoni, Cypripedium × Niobe, Westonbirt var., C. × Trafalgar, Anguloa uniflora, Brassia brachiata, Dendrochilum latifolium, Odontoglossums, and other good things.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a select group, including Cattleya labiata alba, G. G. Whitelegge, C. × Thurgoodii, Odontoglossum grande aureum, O. crispum Lady Jane, Oncidium incurvum album, Cypripedium × Germaine Opoix, and C. × Leeanum Corona. A First-class Certificate was given to C. King George V. (parentage unknown), a large and handsome hybrid allied to C. × Gaston Bultel, and having a large flat dorsal sepal, green at the base, and white flushed with rose above, with some dark lines, changing to purple in the upper part, and the petals and lip brownish purple.

Messrs. Stanley & Co., Southgate, also received a Silver Banksian Medal for a small group of good things, including Læliocattleya Walter Gott, some well-bloomed Cattleya × Minucia, Cycnoches chlorochilon, Eria stellata, Brassocattleya Maronæ, &c.

Mr. H. Dixon, Spencer Park Nursery, Wandsworth Common, sent Odontoglossum Dixonæ, (Edwardii × luteopurpureum hystrix), most like O. × Thompsonianum in general character, but with a more spiny yellow crest.

Mr. Sidney Florey, Tracy's Nursery, Twickenham, sent Lycaste gigantea, Tracy's var., a Peruvian importation, with dark green sepals and petals, and a reddish brown fringed lip.

Mr. G. W. Miller, Clarkson Nurseries, Wisbech, sent Cattleya × Lord Nelson (Harrisoniana × Mossiæ), a pretty rose-purple hybrid.

Messrs. James Veitch & Son, Chelsea, sent Cypripedium × Pyrrha, a handsome hybrid of unknown parentage, but showing some of the characters of C. × Baron Schröder, though with a larger, darker coloured flower.

At the meeting held on October 25th there was a very fine display of Orchids, and the awards consisted of seven medals, two First-class Certificates, and four Awards of Merit.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Odontioda Bradshawiæ,

Westonbirt var. (O. crispum Britannia × C. Nœtzliana), a very fine form, bearing an inflorescence of eleven flowers. These were most like the Odontoglossum in shape, the sepals being orange-red, margined with cream white and tinged with rose, while the broad petals were very similar, but with a large rounded blotch in the centre, and the lip bore orange-red blotches on the front and side lobes. He also sent Læliocattleya Barbarossa, Westonbirt var., a very large and richly-coloured form.

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), received an Award of Merit for Cypripedium × Reginald Young (Elmireanum × insigne Harefield Hall var.), having a very broad yellowish green dorsal sepal, spotted with brown, and margined with white, while the petals and lip are yellowish green, tinged and veined with brown.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting little group, containing Cirrhopetalum ornatissimum and C. refractum, Cœlogyne sulphurea, a fine example of Odontioda Bradshawiæ with two spikes, a pretty hybrid from Odontoglossum Edwardii × sceptrum, having claret-purple segments margined with yellowish white, and the lip bearing a yellow spiny crest, and five plants of Spathoglottis × zebrina (Fortunei × plicata), varying considerably in colour, the flowers being cream white or pale yellow dotted with rose, and the front lobe of the lip yellowish or in some cases purple. An Award of Merit was given to Calanthe densiflora, bearing a short dense raceme of light yellow flowers.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent Cypripedium × Priscilla (exul × insigne Harefield Hall var.), a very fine hybrid, having the dorsal sepal yellowish green blotched with brown, and broadly margined with white, and C. × Troilus, J. Gurney Fowler's var., bearing five handsome flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the handsome SophrocatlæliaVeitchii var. Eros, Læliocattleya Felicia, Goodson's var., having pink sepals and petals tinged with primrose, and a mauve purple lip, and the charming Cattleya × Fabia alba.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent a very beautiful Lælia pumila alba, and Odontioda Seymourii (Odontoglossum cirrhosum × Cochlioda vulcanica), a very pretty purple flower.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium × Germaine Opoix var. imperiale, a handsomely-spotted form, and Sophrocatlælia Veitchii var. Eros.

Messrs. James Veitch & Sons, Chelsea, included a fine lot of Orchids in a magnificent group of Stove and Greenhouse Plants, to which a Gold Medal was awarded. The Orchids were arranged in several batches and were very effective, including masses of Odontoglossum crispum, O. grande, Oncidium varicosum, Epidendrum vitellinum, Cattleya labiata, hybrid

Cattleyas and Læliocattleyas, Cypripedium insigne Sanderæ and other Cypripedes, all being in excellent condition.

Messrs. Sander & Sons, St. Albans, staged a very fine group, to which a Silver Flora Medal was awarded. It contained some excellent Cattleyas, Læliocattleyas and Odontoglossums, the handsome Oncidium Sanderæ, Cycnoches chlorochilon, a good plant of Lanium Berkeleyi, an interesting little Sievkingia from Peru, a good Dendrobium Dearei, the rare D. Bullenianum and D. Eriopsis, Houlletia Sanderi, a Peruvian Govenia, Bulbophyllum Dearei, Miltonia Regnellii, Spathoglottis × Colmanii, Phalænopsis denticulata, Lælia monophylla, a fine mass of Cypripedium insigne Sanderæ, C. i. Laura Kimball, and others. A first-class Certificate was given to C. × Princess Mary (niveum × Helen II.), a large and very beautiful form, dotted with purple on the dorsal sepal and petals. An Award of Merit was given to C. × Britannia (parentage unknown), having a green dorsal sepal spotted with brown, and white at the apex, while the petals and lip are yellowish green, veined and tinged with brown.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a very fine group, including some excellent Vanda cœrulea in the centre, fine examples of Odontoglossum grande, O. × armainvillierense album, some good O. crispum, O. × Wilckeanum, and others, Oncidium oblongatum, O. varicosum, and a lot of O. tigrinum, Lycaste gigantea with seven flowers, a fine batch of well-flowered Lælia pumila, Dendrobium Dearei, some good Cattleya Dowiana, × Fabia, labiata, the beautiful C. × Rothschildiana delicata, Læliocattleyas, &c. An Award of Merit was given to Odontoglossum × Circe (Cervantesii × Pescatorei), a pretty little hybrid, most like the former in shape, and having white flowers spotted with red on the lower part of the segments.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, also received a Silver Flora Medal for a fine group, the background consisting of numerous examples of Oncidium varicosum, oblongatum, tigrinum, superbiens, and splendidum. We also noted a good O. Forbesii, Brassolælia Jessopi, Cattleya Gaskelliana alba, C. × Williamsiæ, C. × Fabia, C. Dowiana aurea, C. labiata, and some pretty white forms, Læliocattleya Ophir, Sophrocattleya eximia, Odontoglossum crispum, Cirrhopetalum Rothschildianum, C. mundulum, Cycnoches chlorochilon, Miltonia vexillaria Leopoldi, Odontioda Seymourii, Cypripedium triumphans, and various other good things.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Banksian Medal for a pretty little group, containing several good Cattleya × Armstrongiæ, C. × Fabia, Cypripedium × Germaine Opoix, C. × Gaston Bultel, C. insigne Bohnhoffiæ, C. i. Harefield Hall var., and C. i. Sanderæ.

Mr. E. V. Low, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a choice group, containing some pretty white varieties of Cattleya labiata, as Amesiana, Cooksonæ, Daphne, Empress, and Vale Bridge var., the richly-coloured C. l. eximia, C. Warscewiczii, C. Dowiana aurea, Lælia pumila, Queen Alexandra, Cypripedium × Olympic (Leeanum Clinkaberryanum × Sallieri Hyeanum), and C. × wivelsfieldiense (Fascinator × Leeanum Clinkaberryanum), a pretty hybrid most like the former.

Messrs. Mansell & Hatcher, Rawdon, Yorks, received a Silver Banksian Medal for a bright group, including examples of Cattleya × Mantinii, × Chloris, × Fabia, × Armstrongiæ, × Wavriniana, × Mrs. Pitt, and × Williamsiæ, two plants of Catasetum maculatum, Epidendrum atropurpureum album, Brassavola cordata, examples of Odontoglossum crispum and grande, Brassocattleya Maronæ, B.-c. langleyensis, Cypripedium insigne Sanderæ, C. × Baron Schröder, and Odontioda Seymourii.

Messrs. J. & A. A. McBean, Cooksbridge, also received a Silver Banksian Medal for a small group, including Miltonia vexillaria Leopoldi, Cypripedium × triumphans, three good examples of Cattleya Dowiana aurea, and C. D. alba, a very pretty form with ivory white sepals and petals, and the usual crimson lip with yellow veining.

Messrs. Stanley & Co., Southgate, sent a small group, including two good Cattleya labiata, C. × Minucia, C. Forbesii, C. × Clarkiæ, Cypripedium × Memnon, C. × Niobe, and Læliocattleya Whitiniæ (L. purpurata × C. Harrisoniana).

Mr. Sydney Florey, Tracy's Nursery, Twickenham, sent a pretty white Vanda with a violet lip, supposed to be a natural hybrid, and provisionally named V. × Floreyæ. It resembled V. cœrulea in habit, but the flowers were smaller and very different in shape.

Mr. L. R. Russell, Richmond, Surrey, included plants of Macodes Petola, Anœctochilus intermedius, A. setaceus, and Hæmaria discolor in a group of miscellaneous plants, to which a Silver Banksian Medal was given.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting of this Society was held at the Coal Exchange, Manchester, on October 6th, when the following members of the Committee were present :—Messrs. E. Ashworth (Chairman), Arthur, Ashton, Chapman, Cowan, Crombleholme, Cypher, Holmes, Holden, Keeling, Parker, Shill, Thorp, Ward, and Weathers (Hon. Sec.). There was a fairly good display of plants.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), staged an interesting group, to which a Silver Medal was awarded. Cypripedium × Sibyl (C. Fairrieanum × Francisiæ) was shown in four distinct named

varieties, one of which, C. × S. var. punctatissimum, was voted a First-class Certificate, while C. × S. var. purpureum received an Award of Merit. Awards of Merit were also given to Cattleya × Angela (C. intermedia var. nivalis × C. Schrœderæ alba), a pretty and distinct albino, and to C. × Hardyano-Warneri.

W. R. Lee, Esq., Heywood (gr. Mr. Woodhouse), who usually displays some choice plants, received First-class Certificates for Odontoglossum crispum var. La Dame Charmante, a beautifully-formed white flower, richly marked with red on the lip, and to Cattleya × Colleen Bawn, closely resembling C. × Hardyana alba. Awards of Merit were given to Odontoglossum crispum xanthotes var. Snow Queen, Cattleya aurea var. Mercia, and Cypripedium × Antinous, Lee's var.

S. Gratrix, Esq., Whalley Range, Manchester (gr. Mr. Shill), staged a group of choice Cypripediums, all notable for their fine forms. First-class Certificates were given to C. × Ellis Markendale, a new form, and to Brassocattleya × Leemanniæ.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), exhibited a small group of good things, and received Awards of Merit for Cypripedium × Bleriot, C. × Dora Crawshay, C. × Hera superbum, and Cattleya × Iris var. illuminosa.

Col. J. Rutherford, Blackburn (gr. Mr. Lofthouse), gained points in the "R. Ashworth" Competition for a nicely-arranged group of Cattleyas, Odontoglossums and other popular Orchids.

F. A. Hindley, Esq., Great Horton, Bradford, was awarded a Bronze Medal for a small group, consisting principally of Cypripediums.

Mr. H. Arthur, Blackburn, received an Award of Merit for the natural hybrid Oncidium × Larkinianum.

Messrs. Cypher & Sons, Cheltenham, were awarded a Silver Medal for an attractive group of well-grown plants, notable among them being some good examples of Dendrobium Phalænopsis var. Schrœderianum, Cattleya and Læliocattleya hybrids, and several good Cypripediums.

The Liverpool Orchid Co., Gateacre, were awarded a Silver Medal for a group consisting of Odontoglossums, Cattleyas, &c.

Mr. J. Robson, Altrincham, exhibited a small collection of Cypripediums.

Messrs. Stuart Low and Co., Bush Hill Park, Mr. W. Shackleton, Great Horton, Bradford, Mr. J. Birchenall, Alderley Edge, Mr. E. V. Low, Haywards Heath, and J. H. Craven, Esq., Keighley, were exhibitors of small groups.

At the meeting held on October 20th there was a capital display of plants, and a few new things were in evidence. The Committee was present as follows:—Messrs. E. Ashworth (Chairman), R. Ashworth,

Arthur, Ashton, Chapman, Cowan, Crombleholme, Cypher, Holmes, Holden, Keeling, Lee, Parker, Smith, Stevens, Shill, Sander, Thorp, Ward and Weathers (Hon. Sec.).

W. R. Lee, Esq., Heywood (gr. Mr. Woodhouse), exhibited a fine collection of plants, which included choice Odontoglossums, Cypripediums, and Cattleyas. The plants selected from this group for awards were Cypripedium × King George V., a large well-shaped flower, the parentage of which was not recorded (F.-c. C.), Odontoglossum crispum xanthotes var. Walkeræ (A.M.), Cypripedium × San-ac-deræ Plumpton Hall var. (A.M.), C. × Hermese, from C. × Euryades × Lceanum (A.M.), and Læliocattleya Black Prince, a richly-coloured hybrid between L.-c. bletchleyensis and C. × Hardyana.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Cattleya × Countess of Derby, which, although we have known it for nearly 20 years, is to-day one of the most beautiful Orchids in cultivation. The plant bore five blossoms on its spike, which is a testimonial to its grower. The plant received the distinction of being awarded a Silver Medal.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), made a grand display of Orchids. It was composed of Vanda cœrulea, Odontoglossum grande, Cypripedium Fairrieanum, Dendrobium Phalænopsis Schrœderianum, Cypripedium Maudiæ, C. callosum Sanderæ, and Epidendrum vitellinum majus, all magnificently grown and staged in masses, the effect being reminiscent of some of the notable Temple Show groups. Mr. Rogers, the gardener at this establishment, was awarded a Gold Medal for Cultural excellence.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), staged a good group, in which were fine examples of Odontoglossums, white forms of Cattleya labiata, and other well-known plants. A Silver Medal was awarded. Cattleya labiata, Mrs. R. Ashworth received an Award of Merit.

W. Thompson, Esq., Stone, Staffs. (gr. Mr. Stevens), exhibited a few Cypripediums, C. × rubens, and C. × Lord Ossulston, Walton Grange var., receiving Awards of Merit.

Messrs. Cypher & Sons, Cheltenham, displayed one of their usual good groups, in which choice forms of Dendrobium Phalænopsis Schrœderianum were prominent, in addition to Cypripediums, Cattleyas, and numerous other fine things.

Other exhibitors of various plants and groups were: E. V. Low, Vale Bridge (Silver Medal); F. A. Hindley, Bradford (Bronze Medal); Col. Rutherford, Blackburn; Messrs. Hartland & Co., Co. Cork; J. Robson, Altrincham; W. Shackleton, Bradford; J. Birchenall, Alderley Edge; and the Liverpool Orchid Nursery Co., Gateacre, to all of whom the thanks of the Committee was accorded. P. W.

OBITUARY.

WILLIAM BOXALL.—A veteran Orchidist has passed away in the person of Mr. William Boxall, the well-known Orchid collector, who died on Sunday, August 28th, at his residence, 186, Brooke Road, Clapton, in his 66th year. His health had been failing for some time, through diabetes, and three years ago he had a stroke of paralysis from which he never completely recovered, though he was able to get about a good deal, and was a frequent attendant at the meetings of the R.H.S.

For many years he was in the service of Messrs. Hugh Low & Co., Clapton, first as Orchid foreman, and afterwards as collector. His first journey to Burma was made over 35 years ago, when he sent home many handsome Dendrobiums, and numerous other Orchids, several of which were new both to science and horticulture, though the richness of the area in question had already been indicated by the discoveries of the Rev. C. Parish and Col. Benson. One of his most famous discoveries was Dendrobium Wardianum var. Lowianum, which flowered with Messrs. Hugh Low & Co. in 1875, and has ever since been one of the most popular of garden Orchids, being imported in enormous quantities. Another striking novelty was Cymbidium Lowianum, which was sent home in 1877, and flowered with Messrs. Low two years later. Dendrobium Boxallii was one of his earliest discoveries, and was named by Reichenbach in his honour in 1874, while Cypripedium Boxallii followed three years later. Two other plants named after him were Vanda cœrulescens Boxallii, in 1877, and V. lamellata Boxallii, in 1880.

The latter is a native of the Philippines, which he had visited a year or more earlier, and from which a number of interesting things had been sent. Among these were great quantities of the beautiful Phalænopsis Schilleriana and P. Aphrodite, which were sent home in specially prepared cases, glazed with ground oyster shells. He also visited Java and Borneo, Brazil, and Central and South America, though we do not remember the exact periods. He made several journeys to Burma and other parts of India, and must have enriched our collections with thousands, if not tens of thousands, of living plants, and at a time when the difficulties of transit were much greater than at the present. With dried specimens he did very little, though he has more than once pleased us with a few odd flowers from between the leaves of a well-thumbed pocket-book.

His knowledge of Orchids and their habitats was very great, as we found in several interesting chats with him, but we do not remember that he published anything. When he visited the Philippines, however, he gave a list of Philippine Orchids to Señor Sebastian Vidal, Director of the Botanic Garden at Manila, and these were incorporated in the *Novissima*

Appendix to the third edition of Blanco's *Flora de Filipinas*. This is evident from the work itself, for at page 230 we read: "Microstylis odorata, . . . Boxall, natione Britannicus, his in ins. Philipp. Orchid diligentissimus collector, anno 1880-81, ms. inscripta 'List of Orchids growing in the Philippine islands,' fide S. Vidal in litteris et ms." In this enumeration we find over 50 Orchids included on his authority alone, though several of them are unknown to us, and a few are obvious mistakes of spelling, &c. It was probably only a rough collector's list, and not intended for publication, at all events in that form, and without revision. One of the plants, however, we are able to identify, for Vanda Vidalii Boxall (p. 240), is a synonym of V. lamellata Boxallii, as Señor Vidal personally informed us many years ago. He it was who told Boxall about the plant, and he expressed some disappointment about its scarcity on a subsequent visit to the locality.

Boxall received one of the original Victoria Medals of Horticulture from the R.H.S. in 1897, and was elected a member of the Orchid Committee in 1902, on which he remained until his death. He was married in 1874, and leaves a widow, but no family, his only daughter having died in infancy.

ORCHIDS IN SEASON.

A HANDSOME flower of Cattleya Dowiana aurea is sent from the collection of Leopold de Rothschild, Esq., Gunnersbury House, Acton, by Mr. Hudson. It has clear yellow sepals and petals, and the lip is copiously veined with deep golden yellow, except for a very small area at the apex, which is deep velvety crimson. It is a very charming Cattleya.

Odontoglossum × Marietta is a handsome hybrid raised in the collection of John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench), from Odontoglossum Lambeauianum × Rolfeæ. It is a small plant, but has produced a spike of twelve flowers, one of which is now sent. It is of good shape, and the sepals and petals are regularly spotted with purple on a rosy ground, while the lip is white in front, and closely blotched with dark brown round the crest. The column wings are denticulate. It contains the same three species as O. × Lambeauianum, but in different proportions, for while the latter is half O. crispum and one quarter each O. Pescatorei and O. Harryanum, the novelty is one quarter crispum and three-eighths of each of the other two. It is a very pretty hybrid. It is the third novelty which has flowered in the collection this year, the others being O. × Hilda and O. × Maritana.

Two pretty hybrids are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Lælio-cattleya Sarah is said to have been derived from L.-c. Amelia × Cattleya ×

Winniana. The sepals and petals are narrow, and the lip strongly three-lobed; while the colour is buff yellow, with some purple on the front lobe. According to the parentage given it should be composed of Lælia cinnabarina, Cattleya intermedia, C. Forbesii, and C. Gaskelliana. The influence of the first is strongly in evidence, while that of C. Gaskelliana seems to have been lost. The strongly three-lobed lip recalls the characters of C. intermedia and C. Forbesii. L.-c. Panama is said to have been derived from L.-c. × Hon. Mrs. Astor × C. Dowiana aurea, and has pretty lilac-purple sepals and petals, and a rather darker entire lip. Mr. Mackay remarks that the flower is not what would have been expected from such a parentage, for the hybrid shows little trace of the influence of C. D. aurea. We would suggest some light purple Cattleya as a more likely parent.

A flower of Cattleya × Fafner (Trianæ × Enid) is sent from the establishment of Mr. C. F. Karthaus, of Potsdam. It is of fine shape, and has light purple sepals and petals, while the front lobe of the lip is rich purple and the crest yellow. It is described in *Orchis*, iv. p. 7.

A handsome Cattleya is sent from the collection of G. Hamilton-Smith, Esq., of Finchley, which is said to have been purchased from the late Mr. H. A. Tracy as an unflowered seedling from C. Lueddemanniana (speciosissima) × Hardyana. The characters of the former are easily traced, but Mr. Coningsby suggests that the second parent may have been C. Warscewiczii, as its influence comes out so strongly. It may be so, but it might also have come through C. × Hardyana as a case of dissociation. A pretty hybrid from C. bicolor × Percivaliana has much of the character of the former. The petals are very broad, and rosy lilac in colour, while the lip is rich purple-crimson, almost to the base, with small auriculate rosy-lilac side lobes. Flowers of the handsome C. × Cybele (Gaskelliana × Lueddemanniana) are also sent, with a good C. × Peetersii, and a small richly-coloured C. labiata, now flowering for the first time, the result of intercrossing two white forms of C. labiata.

Several interesting flowers are sent from the collection of E. F. Clarke, Esq., Teignmouth. One is a form of Cattleya × Williamsiæ (Harrisoniana × Gaskelliana), raised in the collection. Another is probably a form of C. × Cyane, for it is believed to be a seedling from C. Leopoldi × Mossiæ, though the parentage is not absolutely certain. Another is a good richly-coloured form of C. × Iris. Lastly may be mentioned Paphiopedilum Eustaceanum (Argus × superbiens), a well-spotted flower.

GOVENIA TINGENS.—An interesting Peruvian Govenia was exhibited by Messrs. Sander & Sons at the R.H.S. meeting held on October 25th last, which I do not remember to have previously seen alive. On comparing

it I believe it to be Govenia tingens, Poepp. et Endl., a species described as long ago as 1838 (*Nov. Gen. et Sp.*, ii. p. 5, t. 107, fig. 1-7), which does not appear to have been previously introduced to cultivation. Poeppig collected the plants in the dense forests of Eastern Peru, at Cuchero and Pampayaco, and describes the flowers as yellowish with transverse purple lines, which agrees well with the plant exhibited. The genus is now rare in cultivation.—R.A.R.

ODONTOGLOSSUM CRISPUM VAR. PERFECT GEM.

THE beautiful variety of Odontoglossum which we now figure is one that flowered in the collection of A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), and received a First-class Certificate from the

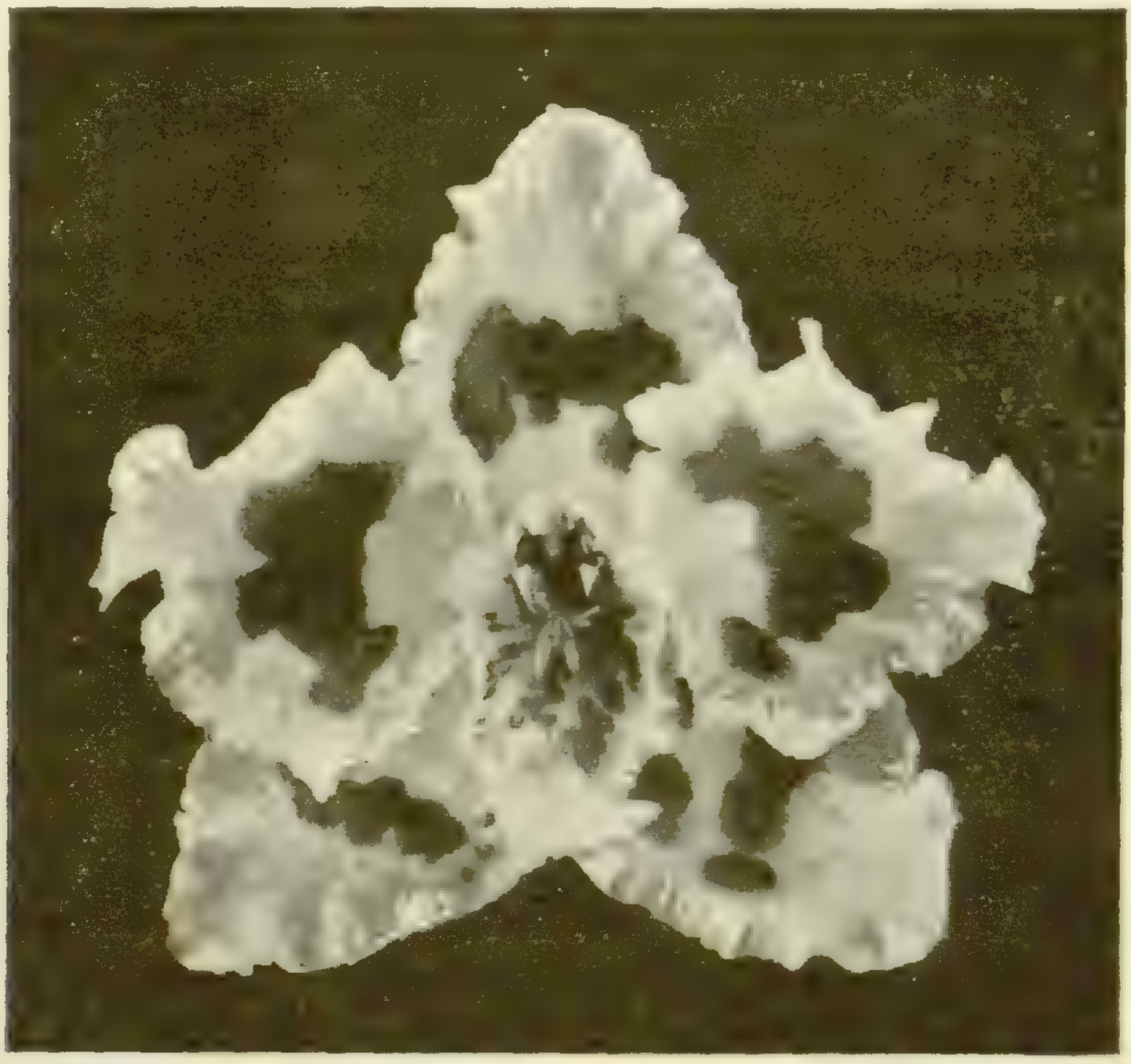

Fig. 22. ODONTOGLOSSUM CRISPUM VAR. PERFECT GEM.

Manchester and North of England Orchid Society on March 19th, 1908, under the appropriate name of Odontoglossum crispum Perfect Gem. It is certainly excellent in shape, and the broad overlapping segments, and the arrangement of the blotches in a zone about mid-way between the base and apex, render the flower very handsome. The ground colour is white, and the blotches deep red-purple. There are very few forms of O. crispum that are equally good in both respects. We do not know from what locality it came, and its origin, like that of other blotched crispums, is problematical, though experiments may yet throw further light on the matter. We need scarcely add that it has been greatly admired.

CATTLEYA × HARDYANA VAR. COUNTESS OF DERBY.

THE five-flowered inflorescence of the magnificent Cattleya × Hardyana var. Countess of Derby, to which a Silver Medal was awarded by the Manchester and North of England Orchid Society on October 20th, is sent from the collection of J. J. Holden, Esq., Southport, by Mr. R. Johnson, who was in charge of the Stand Hall Collection when it originally appeared there in 1894. It received a First-class Certificate from the R.H.S. on September 11th, 1894, under the name of C. Warscewiczii var. Countess of Derby, when we pointed out its unmistakable hybrid character, and named it as above (*O.R.*, ii. pp. 294, 336). Mr. Johnson remarks that it was then considered as the finest Cattleya ever seen, and one of the best judges of Cattleyas in England regards it as still the finest Cattleya in existence. It is a plant of remarkable beauty, the white sepals and petals contrasting so effectively with the very deep velvety purple-crimson lip, while the two yellow eyes in the throat serve to enhance the effect. Although so distinct from most other forms of C. × Hardyana, the influence of C. Dowiana aurea is seen in the short, less spreading petals, the yellow veining on the side lobes of the lip, and the intense velvety crimson colour. Mr. Johnson must be congratulated on being again able to show the plant in such fine condition. Southport was famous for its Orchids some twenty years ago, when the late Mr. R. Perceval and his Orchid grower, George Beddoes, got together one of the finest collections of the period, but it could not be compared with the one formed by Mr. Holden, which contains over one hundred white Cattleyas, species and hybrids, and many of the choicest Cypripedes and Odontoglossums.

PAPHIOPEDLIUM INSIGNE SANDERÆ FROM SEED.

FLOWERS from five different seedlings of Paphiopedilum insigne Sanderæ are sent from the establishment of Messrs. James Veitch & Sons, at Langley, Slough. This plant was twice self-fertilised by Mr. Seden, in 1895 and again in 1904, and the flowers sent are from the latter batch. They are as beautiful as their parent, and one might repeat the current phrase that they have come "true from seed," but it would not be *quite* correct—which biologically is the point of interest. In two cases we cannot detect the trace of a brown dot on the dorsal sepal, even with a lens and when held up against the light. One has eight small dots, another about forty minute dots, and the last has about seventeen small brown dots near the base, and about twice as many minute paler splashes above them. There are also slight variations in size, shape, and in the breadth of the dorsal sepal. These differences are important from the standpoint of heredity, on which our remarks must be deferred. We suspect that similar

remarks might be made about other seedlings of it if critically compared. Of course, the uniformity existing among the thousands of plants now known is due to the fact that they are subdivisions of one original plant.

R.A.R.

CIRRHOPETALUM ROTHSCHILDIANUM.

AN inflorescence of the handsome Cirrhopetalum Rothschildianum is sent from the collection of W. H. Burkinshaw, Esq., West Hill, Hessle, Hull, by Mr. Barker. The species was described and figured in 1895 (O'Brien in *Gard. Chron.*, 1895, ii. pp. 608, 609, fig. 102), from a plant which was exhibited at a meeting of the R.H.S., held on October 15th, by the Hon. Walter Rothschild, Tring Park, to which a First-class Certificate was given. It is said to have been received some years previously, with a few others, from an explorer somewhere in the hills beyond Darjeeling, but, owing to its long and slow journey, it arrived in so withered a condition that it was a long time before it became strong enough to flower. It is an ally of C. Collettii, Hemsl., and in fact is the largest-flowered species of the group. The flowers measure five inches long, and the united sepals measure about an inch broad at the base, and are prolonged upwards into a pair of long slender tails. The prevailing colour is dark red-purple, with traces of the light yellow ground colour. The sepals and petals are margined with long plume-like appendages which flutter in the slightest breeze. It is a very remarkable and striking species. R.A.R.

ONCIDIUM SANDERÆ.—A flower of this handsome Peruvian novelty has been sent by Messrs. Sander & Sons, St. Albans. It is most allied to O. Papilio, the upper part of the inflorescence being somewhat flattened and without nodes, but it differs in the much crisped, lighter-coloured lateral sepals, and lip, and in the column wings being broken up into more numerous filiform capitate appendages. The lateral sepals are clear bright yellow, with very numerous brown bars and spots, and the orbicular front lobe of the lip is similar in colour, with a broad band of brown spots round the margin In other respects it recalls O. Papilio, and is equally handsome.—R.A.R.

OSMUNDA FIBRE.—Under the title "Osmunda regalis Fibre for Orchids," Mr. H. G. Alexander, Orchid grower to Lt.-Col. Sir George L. Holford, K.C.V.O., has written a useful little pamphlet respecting the use of Osmunda fibre for Orchid-growing, which has been published by Messrs. Wm. Wood & Sons, Ltd., to whom we are indebted for a copy. Mr. Alexander has had a long experience in the use of this material, and considers it thoroughly satisfactory as a compost, either alone or in conjunction with other potting materials, according to the subject under

treatment. In fact he remarks that "now probably 80 per cent. of epiphytic Orchids under cultivation in this country are grown in this particular rooting material." Particulars of its use and of the method of storing are given, and he necessarily emphasises the importance of proper attention to the important details of shading, ventilation, watering, &c., all of which are essential to success. As a frontispiece we find a plant of Læliocattleya grown in Osmunda fibre, with the pot removed to show the vigorous roots formed in this material. The pamphlet may be had on application to Messrs. Wm. Wood & Sons.

ORCHID NOTES AND NEWS.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting is fixed for December 6th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on November 3rd, 17th, and December 1st. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m.

ORCHID PORTRAITS.

CŒLIA MACROSTACHYA.—*Journ. Hort.*, 1910, ii. p. 315, with fig.

CYCNOCHES MACULATUM.—*Orchis*, iv. pp. 104, 105, fig. 23.

CYPRIPEDIUM × KING GEORGE V.—*Gard. Mag.*, 1910, p. 803, with fig.

CYPRIPEDIUM × SHOGUN.—*Gard. Chron.*, 1910, ii. pp. 250, 253, fig. 102; *Gard. Mag.*, 1910, p. 777, with fig.; *Journ. Hort.*, 1910, ii. pp. 338, 339, with fig.

LÆLIA × DEGEESTIANA.—*Gard. Chron.*, 1910, ii. p. 274, fig. 113.

PTEROSTYLIS CURTA.—*Orchis*, iv. pp. 100, 101, with coloured plate.

SOPHROCATLÆLIA DANÆ SUPERBA.—*Journ. Hort.*, 1910, ii. p. 385, with fig.

ANSWERS TO CORRESPONDENTS.

[Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work].*

H.G.A. Odontoglossum constrictum, Lindl.

J.W. It is difficult to say how many distinct white varieties of Cattleya labiata there are. A good many have been named, though some of them possess only slight individual differences. The true albino, with only a yellow disc to the lip, is called C. l. alba; that with a rich purple blotch in front of the disc, C. l. elegans, and they are two of the earliest and best.

Photographs received, with thanks.—E.V.L., S.R.

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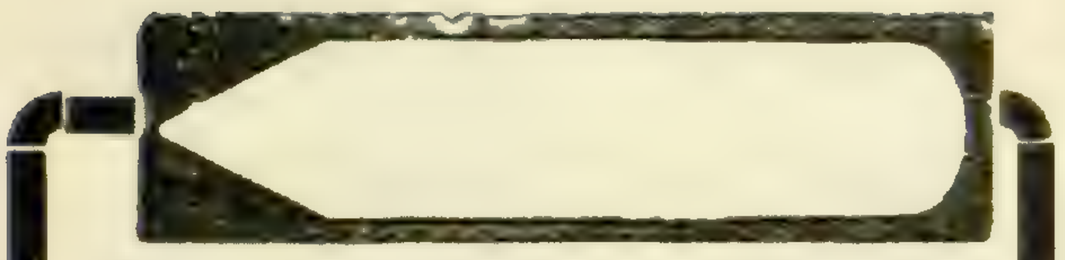

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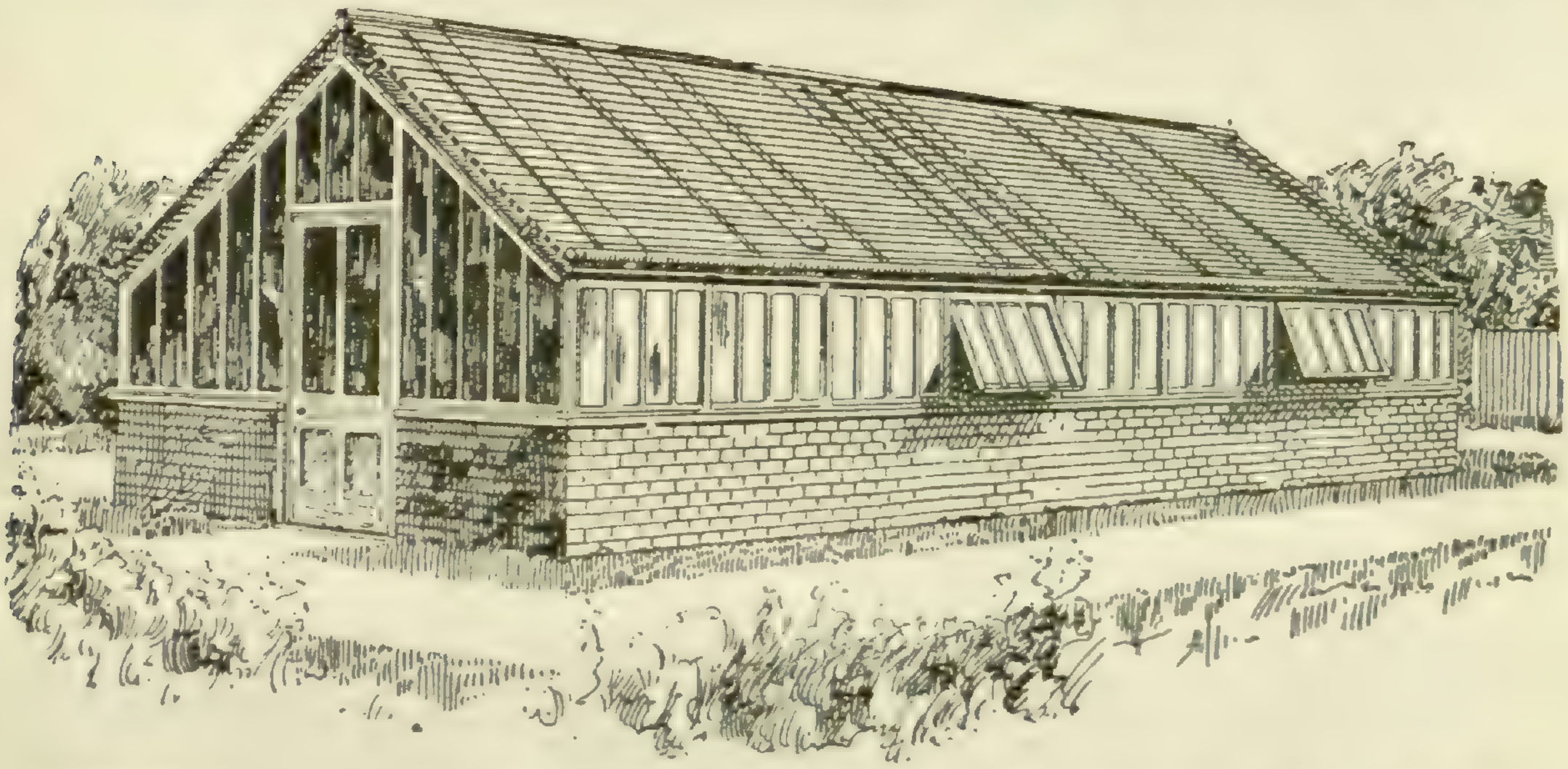

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Vol. XVIII.] DECEMBER, 1910. [No. 216.

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVIII.] *DECEMBER*, 1910. [No. 216.

REVIEWS OF BOOKS.

Orchids for Everyone. By C. H. Curtis, F.R.H.S., with coloured illustrations by T. Ernest Waltham, F.R.H.S., pp. 234, with numerous illustrations in colour and black and white. London: J. M. Dent & Sons, Ltd. New York: E. P. Dutton & Co.

The object of this work is "to extend greatly the popularity of Orchids among that ever-increasing class of business people who have a great love for plants and flowers, and find in their study and culture a delightful recreation and an absorbing hobby." The work is divided into two parts, called "The most useful Orchids" and "Orchids of Lesser Value," and under each head we find an alphabetical enumeration of the various genera, species, and hybrids, with notes on their character and culture. There is also an introductory chapter, one on "Hybridisation, seed, and seedlings," and a "Calendar of Reminders," with an alphabetical Index.

The photographic illustrations are the feature of the work, and whether in colour or in black and white, are excellent, though a few of the former illustrate the difficulties of getting true results by colour photography, and, singularly enough, these are the most pronounced among the greens. One particularly interesting plate shows Odontioda Charlesworthii, with its parents, Cochlioda Nœtzliana and Odontoglossum Harryanum, though the two former are not bright enough in colour. One group of hybrids in Messrs. Charlesworth's Nursery at Haywards Heath is quite a picture gallery in itself, while Calanthe × Veitchii and its white variety is a highly successful picture.

The work is generally well done, though the arrangement is rather novel, and many of the showy genera contain species which might have been relegated to the second division. The difficulty is got over by a subdivision under the different genera, into "best species," "best hybrids," "other species and hybrids," &c.

The chapter on Hybridisation is excellent, and we note with pleasure that Mr. Curtis in his work has adopted the system of a rational and uniform nomenclature for hybrids which we have so long advocated. We may instance such names as Cattleya Murrayi and Brassocattleya Veitchii to

illustrate our meaning, and the system has been carried out with praiseworthy uniformity, as it certainly ought to be, at least in the case of all primary hybrids. In this connection we note a generous recognition of our own work which we need not mention further. The author, artist, and publishers must be congratulated on the production of a very handsome volume.

Orchids. By James O'Brien, V.M.H., pp. 113, with eight coloured plates. London: J. C. & E. C. Jack, 16, Henrietta Street, W.C., and Edinburgh.

This is a volume of the "Present Day Gardening" series, edited by R. Hooper Pearson, Managing Editor of the *Gardeners' Chronicle*, and is divided into 21 chapters, with an Introduction, and includes Rise and Progress of Orchid Culture, Structure of Orchid flowers, Structure of the Orchid House, Potting and basketing process, Propagation by Division, Watering Epiphytal Orchids, Manure for Orchids, Resting Orchids, Diseases and Insect Pests, Orchids for the Conservatory, Orchids as Cut Flowers, Treatment of Imported Orchids, Hybridising and raising seedling Orchids, Enumeration of the Principal Genera and Species in Cultivation, and Orchid Hybrids, with an Index.

It may be regarded as an introduction to Orchid culture, and is full of sound, useful information, though the attempt to compress so much into a small compass (in conformity with the rest of the series) has led to great brevity in the enumeration of cultivated Orchids. No department of present-day gardening, the Editor remarks, exhibits such wonderful progress as is shown in the Orchid gardens and nurseries that are to be found in every portion of these Isles, and it is hoped that the present volume will induce thousands to commence the culture of the cooler species.

The coloured plates represent Cypripedium insigne Sanderæ, Miltonia vexillaria, Dendrobium Wardianum, Cattleya Trianæ var. Hydra, Brassocattleya Digbyano-Mossiæ, Cymbidium Lowio-eburneum, Oncidium Marshallianum, and Odontoglossum crispum. All are fine specimens, photographed in the collection of Lt.-Col. Sir George L. Holford.

DO HYBRID PLANTS VARY?

THIS question is raised in a somewhat unfamiliar form in a recent issue of the *Field* (Oct. 29th, p. 848). Briefly, it is this, Do hybrids vary from year to year? The case is put thus:—

"Some years ago Sir John Edwards Moss, writing to the *Orchid Review*, stated that two hybrid Orchids in his collection, namely, Brassocattleya Orpheus and Læliocattleya Aphrodite, had behaved in an extraordinary way, the colours of the flowers and the form of the pseudobulbs varying from

year to year. He now writes us that he has observed in the case of some hybrid Orchids alternations with respect to certain characters, which suggest that they are not fixed, the characters of now one parent, now the other, preponderating in different years. Sir John says:

'1. Last year I obtained from Sander a cross between Cattleya Warneri and Læliocattleya callistoglossa. It flowered almost true C. Warneri, and I entered it in the book in which I put down the dates of flowering and the characteristics of all my hybrids. This year it has flowered again, but now it resembles L.-c. callistoglossa, having a fine deep-coloured lip and mauve-tinted sepals and petals.

'2. I have a hybrid believed to be Cattleya Hardyana × C. aurea, which flowered this year on Aug. 10th, and the flowers were mauve, with slightly streaky sepals and petals, whereas last year when it flowered it had good pale yellow sepals, and a deep purple lip with yellow blotches.

'Now there can be no mistake between yellow and mauve; also I think this year's flowers are much finer than they were last year. I have many crosses between short-bulbed Cattleyas, with one leaf on each bulb, and long-bulbed Cattleyas, which have two leaves. I am sure that these hybrids vary occasionally, sometimes having one, sometimes two leaves at the ends, and can you tell me whether this is always the case, and, if so, whether there is any rule with regard to it?

'Anyone who buys or sells a hybrid Læliocattleya from a painting of the bloom, as people very often do, must not be surprised if it produces a flower unlike the picture.'

The writer remarks: "Although we have raised and handled many hybrid plants, including bigeneric hybrids, we have never observed in their behaviour anything unusual, such as is here described by Sir John Edwards Moss, and the experience of three of the most successful breeders and growers of Orchids in this country of whom we inquired is similar to ours. Changes in colour may be brought about by an alteration in the chemical conditions in which the colour pigment is produced, *i.e.*, nutrition, light, &c., and, of course, the stronger and healthier the plant is, the clearer and richer its colours should be. This applies also to the pseudobulbs and leaves." He then mentions the curious behaviour of the peach-nectarine, as mentioned by Darwin, the unaccountable fluctuation of Cytisus Adami, the "breaking" of tulip flowers, the dimorphism of Cycnoches and Catasetum, and what is known as "sporting" in various plants, concluding: "These are well-known departures from the general rule of growth and behaviour. There is also the change of character known as degeneration, which affects some forms among garden races. These, however, are not quite of the same nature as the changes above described, for which we confess we are unable to account."

CALENDAR OF OPERATIONS FOR DECEMBER.

By W. C. Price, Oakdene, West Didsbury.

General Remarks.—This month is the dullest in the whole year from a growing point of view, the plants generally being at a standstill until the turn of the New Year. Great care should be taken with the watering can, and the damping down of the houses. It is surprising what a small amount of water is required to keep well rooted and healthy Orchids in good condition at this time of the year, and I always find that if a plant is grown properly, and the temperature is not run up too much by fire-heat, the roots go through the winter without loss. I often hear the remark, "Oh, it is of no use me buying this or that, I can get on all right with them during the best part of the year, but they always lose their roots with me during the winter, and are not fit to look at the following season." And upon enquiring as to the method employed during the winter I find that too much water has been given. Orchids are better during the cold, dark winter months for being kept on the dry side. I think that more are killed in this country by the wrong use of the watering can than by all other causes put together.

The damping down should be closely attended to, and the grower should be careful not to get the atmosphere of the houses overcharged with moisture, but on the other hand he should be careful not to get them too dry. If in the morning the plants are covered with moisture, like dew, it is a sure indication that there is an excess of moisture, and the grower should reduce the amount of damping in the afternoon until by due observation he has struck the happy medium. A little ventilation whenever the outside conditions will permit, if only for a few minutes, will be beneficial in helping to balance an excess, and help to sweeten the atmosphere.

The houses should be lightly fumigated about every ten days, as it will keep down the insect pests, and is the cheapest way of doing so. Fumigate often and lightly, as it is better than fumigating strongly and then going a month or six weeks before repeating the operation.

All cleaning, both of houses and plants, that has not yet been done should be finished this month, so that it leaves the grower a free hand for the commencement of the New Year, when the potting season commences. As soon as the cleaning is finished, loam, peat, polypodium and Osmunda fibres may be prepared ready for potting, and stored away in a suitable place.

Where lath blinds are used they should be run out at night when the weather is frosty or windy, as they help to keep the temperature steady, and also are helpful in keeping down the fuel account.

A supply of sphagnum moss should be secured at once, before severe weather sets in, so that no delay is caused when potting during the next two months. It often happens during that time that the supply of sphagnum is frost-bound for weeks, and therefore unobtainable. It will keep in good condition for two months if spread thinly in a cold frame or similar place and not allowed to get dry.

TEMPERATURES for the month should be as follows, but the grower should use his own judgment in modifying them according to conditions prevailing :—

Cypripedium House:	day, 65° to 68°; night, 65°; morning, 60°.
Cattleya House:	day, 60° to 65°; night, 60°; morning, 58°.
Intermediate House:	day, 58° to 60°; night, 58°; morning, 55°.
Odontoglossum House:	day, 55° to 58°; night, 55°; morning, 50°.

If the morning temperatures fall below the figures mentioned above, every effort should be made to raise them to the desired point as soon as possible, and the houses should not be damped down or any plant watered until the temperature is correct.

ANGULOAS will only require sufficient water to prevent them from shrivelling until the new growths are seen pushing from the base of the bulb, when they may be repotted.

BULBOPHYLLUMS are a very peculiar class of Orchids, and always attract a great deal of attention from visitors when in flower. They are rather slow growing plants, but not by any means difficult when given ordinary care and attention. A good collection of them should be grown in every Orchid establishment, as they are very interesting and sure to give pleasure to the cultivator. At present in the Warm house B. virescens, Ericssoni, grandiflorum and Lobbii are growing freely, and should be placed in the lightest possible position until the sun gains in power, when a slight shade should be given them.

BRASSIAS form another class of Orchids that is not often included in collections. It is true that many of them do not attract much attention when in flower, owing to their lack of colour, but there are some that are well worth growing, and will always attract attention when included in a group of flowers. B. caudata, verrucosa, Lawrenceana and maculata would be worth including in any collection. Their culture is about the same as the warmer sections of Oncidium, and I find that they do best when grown at the cool end of the Cattleya house all the year round.

CATTLEYAS.—C. Percivaliana, the next of the labiata section to flower, is now pushing up its flower buds. It is a rather neglected species, owing to the flowers being rather small, but I think that it will soon come into favour again, as some very fine varieties have flowered from recent importations, the flowers being much larger than the old type. This Cattleya

should be given the warmest position in the house, for if given a cool position the buds turn yellow and drop off. C. Trianæ is also pushing up its flower buds, but will stand very well at the cool end of the house. Be careful, however, not to water them until they really require it, or perhaps you may find one morning that there is a black streak on the bulb that was not there the night before, and if you get that, unless the variety is an extra good one, the best thing to do is to burn it. C. Warneri, which will not flower until late Spring, is now starting to grow. Do not attempt to retard it, for by doing so you will only have failure and a poor growth. On the other hand, it should not be hurried, either by giving it more heat or more water than it requires. Give it just sufficient to keep it moving gently and looking happy until the days lengthen, then you may hope for success and flowers. C. Gaskelliana will soon be showing signs of activity, but should not be hurried. Let the plants move gently until the days get brighter; they will be all the better for it and produce better flowers. C. Lawrenceana, having now fully completed the growth for the season, should be kept on the dry side, but not quite dry, until the flower spikes are seen to be pushing, when they should have a fair amount of water given them.

CALANTHES of the vestita section will now be in full flower, and should only have sufficient water to help them to carry their spikes. Weakly plants should not be allowed to flower at all. As soon as the spikes are off, the plants should be placed on a shelf at the warm end of the Cattleya or some similar house, where they can get all the sunlight possible during the winter months. They will require no more water until they commence to grow again.

CŒLOGYNE CRISTATA, having made up the young bulbs, should be kept on the dry side, but not allowed to shrivel. They will flower without shrivelling, if they are going to flower at all, and it only causes the flower spikes to come weak, and also weakens the plant.

CYPRIPEDIUMS will be the leading class in flower this and next month. They should be potted soon after the flowers are off, so that they have the full season's growth before them, and be in a satisfactory state next autumn to carry a crop of fine blooms. Any seedlings that require moving on should be attended to without disturbing the roots of the old compost, if it is in good condition.

LÆLIA ANCEPS.—The coloured forms of L. anceps are now in flower, making the house look quite gay. The white varieties will follow in a week or two, and what a show they will make until the end of January! This beautiful and useful Orchid deserves to be more largely grown than it is at the present time, as it is very showy, and useful for any purpose where decorations are required during this time of the year.

SOPHRONITIS GRANDIFLORA.—Some of the earliest of these are now in

flower, and where they are grown in quantity will continue to make a good show and brighten the house. In fact it is like a ray of sunshine to see them in bloom. They should be kept well supplied with water until the flowers are off, but the base of the bulbs should not be dipped in the water, as it is liable to rot them at this season.

VANDAS, Saccolabiums, Aërides and Angræcums now require very little water, and a sprinkling occasionally with a rose-can over the surface of the compost when very dry will be sufficient. It takes them too long to dry out at this time of year if they are given a good watering. Other allied genera require similar treatment.

CULTURE OF ONCIDIUMS TO PREVENT THEIR DETERIORATION.

MANY growers and amateurs do not cultivate the numerous species of this genus, which are suitable for Cool houses, owing to the fact that they cannot be kept long in a good healthy condition, and flowering successfully each year. However, from various experiments extending over three years, I can recommend the following course of treatment as being satisfactory in checking their habit of deterioration.

In the first place, I like growing these Orchids on a shelf near the glass, either at the coolest end of the Intermediate house, or at the warmest end of the Odontoglossum house. In the second place, they should be grown in Orchid pans or pots, with a specially prepared compost, and repotted or repanned, as the case may be, every year, which should be done when the new growth is about two inches long. For compost use Polypodium fibre, sphagnum moss, well-rotted oak leaves, and a tea-spoonful of dry guano to a five-inch pot, mixing all well together. Place a layer of pure moss for surfacing the compost.

Lastly, throughout the year, from the time that the new growths are two inches long till the flowers are open, water the plants with liquid guano once a week, and twice when the flower-spikes are pushing.

If tested in the above manner, no signs of the deterioration, previously common to Cool-house Oncidiums, will be noticed. The plants I have so far experimented upon are Oncidium crispum, concolor, Forbesii, incurvum, tigrinum, and varicosum. A proof of the vigour possessed by these Oncidiums so grown may be seen from the fact that two years ago a plant of Oncidium tigrinum was allowed to bear two seed pods, and eighteen months after the same plant produced a spike carrying twenty-one flowers, and the new growth it is now making gives promise of being more vigorous even than the last. Oncidium concolor frequently produces two flower-spikes from each pseudobulb, which, I think, is unusual.

ALWYN HARRISON.

NEOLAUCHEA PULCHELLA.

A PLANT of this rare and interesting little Orchid has just flowered at the Royal Botanic Garden, Glasnevin. It originally appeared in the collection of Prince Johann Liechtenstein, of Eisgrub, and was described by Dr. Kränzlin in 1897 (*Bull. Herb. Boiss.*, v. p. 110), being dedicated to Mr. W. Lauche, who is in charge of the Collection. Its habitat is not recorded. It is a tiny plant, about three inches high, with a creeping rhizome, and ovoid, somewhat distant pseudobulbs, about three lines long, terminated by a single slender terete leaf. The scapes are one-flowered, and about as long as the leaves, the flowers being five lines long, and bright purple, somewhat resembling those of Hartwegia purpurea, Lindl., in colour. It is, indeed, allied to the latter, and still more so to the remarkable Brazilian Isabelia virginalis, Rodr. (*Gen. et Sp. Orch. Nov.* i. p 76, Frontispiece), which it closely resembles, both in habit and floral structure, though the bulbs are more distant, and the fibrous remains of the sheaths much less copious. In both genera the united base of the lateral sepals and the foot of the column form a sac-shaped mentum, and both have eight pollinia, united by very slender filiform caudicles. They must be placed next to Hartwegia in the systematic arrangement. In Neolauchea the sepals and petals are subconnivent, and the lip is erect, with two sharply reflexed angles at the base. The plant was purchased at the recent sale of the Clifton Collection. It would be interesting to know something more about its history, though from its affinity it is safe to describe it as Tropical American. It will probably succeed in a light position in the Cattleya or Intermediate house.

R. A. ROLFE.

WARREA HOOKERIANA.—A striking species of Warrea has flowered out of the Peruvian importations of Messrs. Sander & Sons, which I am unable to distinguish from the plant described by Reichenbach in 1856 under the name of Phaius Hookerianus (*Bonplandia*, iv. p. 328). The latter was based upon a dried specimen collected by Matthews at Pangoa, Peru, growing in moist shade. Reichenbach afterwards detected the error of calling it a Phaius, but then thought the plant might be Warrea bidentata, Lindl. He also thought that a plant in his Herbarium, collected at Moyobamba, was W. bidentata (*Gard. Chron.*, 1868, i. p. 105), but it is much more likely to be the one now under notice, for W. bidentata is not otherwise known from Peru. The flowers of W. Hookeriana are rather larger than those of W. bidentata, but are very similar in colour, being of a peculiar shade of reddish purple, rather paler in the centre. The flowers are borne in erect scapes, and are somewhat globose in shape. The appearance of the species in cultivation is interesting.

R.A.R.

PAPHIOPEDILUM × KING GEORGE V.

THE annexed figure represents a magnificent hybrid which was exhibited at a meeting of the R.H.S., held on October 11th last, by Mr. E. V. Low, Vale Bridge, Haywards Heath, under the name of Cypripedium King George V., and to which a First-class Certificate was given. At that time the parentage was not recorded, and we described it (page 340) as "a large

Fig. 23. PAPHIOPEDILUM × KING GEORGE V.

and handsome hybrid, allied to C. × Gaston Bultel, and having a large flat dorsal sepal, green at the base, white flushed with rose above, with some dark brown lines, changing to purple in the upper part, and the petals and lip brownish purple." At the following meeting, however, Mr. Low forwarded his record of parentage as follows: "C. × giganteum (Harrisianum × nitens) × C. Charlesworthii, and this would show an ancestry of half Charlesworthii, one quarter villosum, and barbatum and insigne

one-eighth each. The combination has certainly produced a very handsome plant, in which the characters of C. villosum are particularly well represented, though the influence of all the original species can be traced. The plant afterwards passed into the collection of W. R. Lee, Esq., Heywood, near Manchester, and received a First-class Certificate from the Manchester Orchid Society on October 20th. The photograph reproduced was kindly sent by Mr. Low, and has been slightly reduced in size, being a little too broad for our pages. It is a very handsome acquisition, both shape and colour being excellent.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on November 8th, when there was a very fine display of Orchids, and the Awards consisted of eight Medals, one First-class Certificate, and two Awards of Merit.

E. R. Ashton, Esq., Camden Park, Tunbridge Wells (gr. Mr. A. Young), received a Silver Banksian Medal for a select group, including Cattleya × Luegæ, Broadlands var., a beautiful light-coloured form, C. × Phrygia (Portia × Enid), a fine hybrid with magenta-rose flowers, C.× Williamsiæ, C. × Fabia, C. × Armstrongiæ, C. × Russelliana, Læliocattleya Phœbus (L.-c. Cappei × C. × Iris), a brilliantly-coloured hybrid, having the sepals and petals reddish copper-colour, and the front of the lip deep crimson, L.-c. Mrs. Temple (L. c. Greenwoodii × C. Mossiæ), Brassocattleya Thorntoni, and others.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), also received a Silver Banksian Medal for a choice group, including the distinct Sophrocattleya Wellesleyæ perfecta (S. grandiflora × C. labiata, R. I. Measures' var.), a beautiful orange-red flower with very broad petals, a fine Cattleya labiata alba, C. × Rafaeliæ alba, Læliocattleya rubens, a striking form of Odontoglossum × Rolfeæ with comparatively few spots, a brilliant form of Odontioda Charlesworthii, some good O. Bradshawiæ, &c.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), received a First-class Certificate for Sophrocattleya Doris, Cobb's var. (S. grandiflora × C. Dowiana), a remarkably large form, having brilliant scarlet flowers with a yellow throat to the lip.

Mrs. Norman Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cypripedium × Arthurianum, Oakwood var. (insigne Sanderæ × Fairrieanum), having a light yellow ground colour, C. × oakwoodiense (of unknown parentage), and Calanthe × Cooksonæ gigantea (vestita rubro-oculata gigantea × Harrisii), a beautiful pure white hybrid, with a very broad lip.

Lieut.-Col. Sir George L. Holford, Westonbirt (gr. Mr. Alexander), sent Cattleya × Portia gigantea, a very large and handsome form bearing an eight-flowered spike, Cypripedium × Beacon superbum (× J. Howes × nitens-Leeanum), Læliocattleya Barbarossa, L.-c. Arethusa, and L.-c. Olivia (L. Jongheana × C. Schrœderæ), the latter, a very beautiful pink flower with an orange-coloured throat to the lip, receiving an Award of Merit.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting little group, containing two good plants of Phaiocalanthe Colmanii, Dendrobium Cœlogyne, D. epidendropsis, Liparis longipes, Bulbophyllum mandibulare, a fine example of B. Ericssoni, Epidendrum nocturnum, Trichosma suavis, and a pretty little Cirrhopetalum with rosy-coloured flowers.

S. Larkin, Esq., Ridgways, Haslemere (gr. Mr. Hale), sent an interesting little group, containing Læliocattleya eximia, Lælia × splendens, a pretty rose-tinted flower with the front lobe of the lip purplish crimson, Cattleya × Portia, Larkin's var., of excellent shape and colour, C. × Zoe (Trianæ × Leopoldi), and C. × Wavriniana.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Sophrocatlælia Thalia (S. grandiflora × L.-c. Cappei), with several bright orange-red flowers, and a plant called Læliocattleya Ville de Bruxelles, said to have been derived from Læliocattleya callistoglossa and L.-c. Clive, but which the Committee decided was a fine form of Læliocattleya epicasta.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, to which a Silver Flora Medal was given. It included some beautiful forms of Cattleya × Rhoda, C. labiata alba, C. × Fabia alba, C. × Luegæ, two fine forms of C. × Venus, one most resembling C. × Iris in shape and colour, the other equally approaching C. Dowiana, Læliocattleya Eurydice, luminosa, and others, the rare and pretty Rodriguezia Batemanii, Chondrorhyncha Chestertoni and fimbriata, Zygopetalum Binoti, Oncidium Forbesii, O. prætextum, O. tigrinum, Angræcum articulatum, Cœlogyne Veitchii with graceful pendulous spikes of white flowers, Polystachya paniculata, and a good number of Cypripediums and Odontoglossums.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group of Cypripediums, including about sixty different kinds, noteworthy among them being the handsome C. × Thalia giganteum, C. × Baron Schröder, C. × fulshawense, C. × Minos, Veitch's var., C. × Tityus superbum, C. × Maudiæ, C. × Niobe superbum, C. insigne Sanderæ, C. i. Harefield Hall var., a handsome hybrid from C. × Leeanum and C. × Swinburnei, and others, the whole being splendidly grown and flowered.

Messrs. W. B. Hartland and Sons, Ardcairn, Ballintemple, Co. Cork, received a Silver Flora Medal for a very fine group, in which hybrids of

Cattleya Bowringiana were particularly noteworthy, and included forms of C. × Mantinii, × Portia, × Chloris, Browniæ, and some excellent plants of Læliocattleya Parysatis, one bearing eleven flowers on a spike. There were also good examples of Cattleya labiata, × Rothschildiana, × suavior, Cypripedium × Swinburnei magnificum, C. insigne Sanderæ, C. i. Mrs. F. W. Moore, Brassocattleya langleyensis, two examples of the purple Odontoglossum × Groganiæ, and other good Odontoglossums.

Messrs. Stuart Low & Co., Enfield, received a Silver Flora Medal for a fine group, including numerous Oncidium varicosum, O. v. concolor, O. Forbesii, Odontoglossum grande, Pescatorei, crispum, and others, some brilliant Cattleya labiata, rose and white, C. Dowiana, and C. × Mantinii, Miltonia vexillaria Leopoldi, Dendrobium Phalænopsis, Cymbidium Tracyanum, Læliocattleya Decia, Bulbophyllum grandiflorum, Lycaste × Mrs. Rogerson, and numerous good Cypripediums.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a large and handsome group, including some fine specimens of Vanda cœrulea, some good blotched Odontoglossum crispum, × eximium, × amabile, × bellatulum, &c., Odontioda St. Fuscien, var. ignea, Læliocattleya Rothschildiæ, L.-c. Walter Gott, L.-c. Black Prince, the handsome Cypripedium × Dreadnought, C. × Minos, and others, some good Cattleyas, Bulbophyllum Dearei, Promenæa xanthina, Ionopsis paniculata, Eria marginata, Waluewa pulchella, Brassocattleya Maronæ, and numerous other good things.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Banksian Medal for a select group, including several pretty Cattleya × Armstrongiæ, a good C. × Fabia, C. Harrisoniana × Lueddemanniana, Cypripedium × Germaine Opoix, C. × Niobe, Westonbirt var., the richly-coloured C. × Fowlerianum magnificum, C. × triumphans, Cymbidium × Lady Colman, Brassocattleya Thorntoni var. Boydiæ, a pretty blush-white form, with a greenish yellow disc to the lip, Odontioda Thwaitesiæ, and Dendrobium Cœlogyne.

Messrs. J. & A. A. McBean, Cooksbridge, showed a magnificent plant of Cattleya × Portia, bearing a spike of fifteen flowers, the handsome Sophrocattleya Doris, some good Cypripedium insigne Sanderæ and C. i. Harefield Hall var., and a fine hybrid between the last-named and C. × nitens.

M. Maurice Mertens, Ghent, sent a few good hybrid Odontoglossums.

Messrs. Stanley & Co., Southgate, sent a pretty little group, including a handsome Læliocattleya Rothschildiæ, L.-c. Whitiniæ, L.-c. Gottoiana, Cattleya × Heloisiæ, C. × Portia, C. × St.-Gilles, C. × Clarkiæ, C. labiata eximia, and C. l. virginea, a pretty white form with a lavender tinge at the apex of the petals, and the lip light mauve-purple in front.

At the meeting held on November 22nd, there was a very fine display of Orchids, and the Awards consisted of eight medals, three First-class Certificates, three Awards of Merit, and one Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a very beautiful group, to which a Silver-gilt Flora Medal was given. It contained a number of good Odontoglossums, Cattleya × Iris and others, Lælio-cattleya Myrrha (C. Dowiana Rosita × L.-c. Gottoiana), a fine yellowish-rose flower, and other Læliocattleyas, some good Cypripedium × Leeanum, including C. × L. Clinkaberryanum with seven flowers, a number of C. insigne Sanderæ, and numerous other fine Cypripedes. Mr. Goodson also exhibited about 130 coloured paintings of Orchids, from plants in his collection, making a most imposing display. An Award of Merit was given to Sophrocatlælia Althæa (C. Percivaliana × S.-l. Gratrixiæ), a handsome hybrid, having salmon-rose sepals and petals, and a three-lobed, ruby-crimson lip, with some yellow in the throat.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received a Silver Flora Medal for a fine group, including some good Odontoglossums, Masdevallias, Lycastes, and Cypripediums, among the latter being some fine C. insigne Sanderæ, varieties of C. Leeanum, C. × Tityus superbum, × Baron Schröder, × triumphans, × Thalia, the richly-coloured C. × gigas, Glebelands var., &c.

S. Larkin, Esq., The Ridgeways, Haslemere, (gr. Mr. Hale), received a Silver Banksian Medal for a good group, containing two plants of Cymbidium Tracyanum, some good Læliocattleyas, including one derived from Lælia pumila and C. × Hardyana, Oncidium incurvum, Cypripediums, &c. An Award of Merit was given to a finely-grown Cattleya × lucida (Bowringiana × Schilleriana), bearing three large heads of ten to twelve, bright rose-purple flowers, with a light throat to the lip and a whitish margin to the front lobe.

Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Hunt), also received a Silver Banksian Medal for a group of splendidly grown Calanthe × Bryan and C. × William Murray. The plants are grown in six inch pots, the bulbs large, and some of the spikes as much as three feet long.

Lt.-Col. Sir George L. Holford, K.C.V.O., Westonbirt (gr. Mr. Alexander), received a First-class Certificate for Cypripedium × Minotaur (Euryades × Minnie), a very handsome hybrid, having a broad white dorsal sepal, with a small yellow-green base, numerous violet-purple blotches, and a median band of similar colour; while the petals and lip are yellow, the former veined and the latter tinged with brown.

Col. Cary-Batten, Abbots Leigh, Clifton, Bristol (gr. Mr. Spowage), received a Cultural Commendation for a fine specimen of Oncidium tigrinum, bearing a single panicle with as many as 53 flowers.

M. Firmin Lambeau, Brussels, sent Cattleya × Drapsiana (Mrs. Pitt × Dowiana aurea), with pale greenish yellow sepals and petals, and a rose-coloured lip veined with orange, and C. × Maggie Rafael, Lambeau's var. (Trianæ × Dowiana), a fine form, having pink sepals and petals and a ruby-crimson lip.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), sent Cypripedium insigne, Baronshalt var., a good form without much spotting on the dorsal sepal.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent a very pretty group of hybrids, including a brilliant Odontioda Charlesworthii, Odontoglossum × Blackii (Pescatorei × Rossii), a pretty white flower with some dark purple spotting on the sepals and a few purple marks at the base of the petals, Sophrocattleya Thwaitesii (C. Mendelii × S. grandiflora), having rose-tinted sepals and petals and the front lobe of the lip mauve, four good forms of Cattleya × Maggie Rafael, with white petals, and the handsome Læliocattleya Rubens (C. × Hardyana × L. pumila).

Messrs. James Veitch & Sons, Chelsea, staged a very fine group of Cypripediums, to which a Silver Flora Medal was awarded. It contained some fine examples of C. insigne Sanderæ and other forms of C. insigne, some good C. × Leeanum giganteum and C. × L. Clinkaberryanum, C. × illustre (Leeanum × Euryades), a prettily spotted flower, some good C. Fairrieanum, C. × Maudiæ, × Baron Schröder, × Milo superbum, × Arthurianum, × Simonii, × Niobe, &c. An Award of Merit was given to C. × Iolanthe (Euryades × insigne Sanderæ), a fine hybrid, having a broad white dorsal sepal spotted with purple, and yellowish petals and lip, deeply tinged and veined with purple.

Messrs. James Cypher & Sons, Cheltenham, also received a Silver Flora Medal for a very large and handsome group, including some well-grown Calanthe × Veitchii, Vanda cœrulea, Odontoglossum crispum and a number of hybrids, Lycaste lasioglossa, Sophronitis grandiflora, some well-bloomed Masdevallia tovarensis, numerous fine forms of Cypripedium insigne and × Leeanum, some good dark forms of C. Fairrieanum, × Rolfei, × Vipani, × Niobe, × Fascinator, and others.

Messrs. Stuart Low & Co., Enfield, received a Silver Banksian Medal for a very bright and pretty group, including some good Dendrobium Phalænopsis, Oncidium varicosum concolor and other Oncidiums, Cattleya labiata alba, C. × Fabia, Odontoglossums, Cypripedium × fulshawense, C. insigne Sanderæ, and numerous other Cypripediums, with a good plant of Liparis longipes, bearing about twenty spikes of pale green fragrant flowers.

Messrs. J. & A. A. McBean & Son, Cooksbridge, also received a Silver Banksian Medal for a group of about thirty well-grown plants of Cypri-

pedium insigne Sanderæ, one of them bearing twelve flowers, and several good C. insigne, Harefield Hall var.

Messrs. Sander & Sons, St. Albans, received a First-class Certificate for Vanda cœrulea Sanderæ, a handsome form, having white sepals and petals, tipped and margined with magenta pink, and the lip of a magenta shade. A similar award was given to Cypripedium Charlesworthii var. Temeraire, a very remarkable form, the dorsal sepal being nearly four inches across, wavy at the sides and pointed at the apex, and the colour white with rosy-lilac veining, the petals and lip being fairly typical. They also sent Chondropetalum Fletcheri, Bulbophyllum cylindraceum, and an unnamed Peruvian Lycaste with ivory-white flowers.

Messrs. Charlesworth & Co., Haywards Heath, sent a pretty little group, including a fine example of Odontioda Devossiana, Calanthe × burfordiensis, Cypripedium × Leeanum giganteum, C. × Thalia, and other hybrid Cypripedes; also a few very good Cattleyas.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a small group of choice things, including Brassocattleya Leemanniæ, Cymbidium erythrostylum, Cypripedium × Germaine Opoix, Westfield var., C. × Priam, C. × Thalia, Westfield var., Cattleya × Maggie Rafael alba, C. × Lambeauiana, and C. × Clarkii.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A meeting of this Society was held at the Coal Exchange, Manchester, on November 3rd, when the following members of the Committee were present:—Messrs. E. Ashworth (Chairman), R. Ashworth, Arthur, Ashton, Bolton, Holmes, Keeling, Parker, Sander, Thorp, Ward and Weathers (hon. sec.).

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), exhibited a fine collection of plants, in which were some very good Cypripediums, C. × Earl of Tankerville, C. insigne var. Sanderæ, C. × Hitchinsiæ in variety, and a choice plant of Lycaste Skinneri var. alba. (Silver-gilt Medal).

J. H. Craven, Esq., Keighley (gr. Mr. Corney), staged a group of Epidendrum vitellinum var. autumnale, which added brightness to the show, and for which a Silver Medal and Cultural Certificate were awarded. Cattleya × Fabia alba, Craven's var. received an Award of Merit.

F. A. Hindley, Esq., Great Horton, Bradford (gr. Mr. Fox), was awarded a Silver Medal for a mixed group of Orchids.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), was awarded a Silver Medal for a splendidly-grown collection of Cypripediums, in which were many specimens of the yellow forms of C. insigne.

R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), had the distinction of

gaining the only First-class Certificate awarded at the meeting. It was granted to Odontoglossum crispum var. R. Ashworth, of which O. c. var. Graireanum was one of the parents.

W. R. Lee, Esq., Heywood (gr. Mr. Woodhouse), made a fine display of bright and rare plants. Awards of Merit were granted to Odontoglossum × Aireworth var. Fire King, Cattleya × Cooksoni var. Queen Amelie, C. × Princess Royal, and C. labiata var. Leeana.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), received an Award of Merit for Cypripedium × Reginald Young.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), exhibited two forms of Cattleya × Fabia; one named C. × Fabia var splendens receiving an Award of Merit.

A. Hanmer, Esq., Marple, exhibited a peculiar form of Cypripedium × Hitchinsiæ.

Col. J. Rutherford, Blackburn (gr. Mr. Lupton), a competitor for the "R. Ashworth" Cup, staged a group of Cypripediums.

W. Thompson, Esq., Stone (gr. Mr. Stevens), exhibited Odontoglossum × exultans var. Minerva, and Cypripedium × Ed. Guest.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a good group of Cypripediums, in which was noted the pretty C. × Boltoni.

Mr. H. A. Inness, Croft Spa, Yorks., was awarded a Silver Medal for a display of miscellaneous Orchids, including many Cattleyas and Cypripediums.

Messrs. Keeling & Sons, Bradford, staged, amongst other things, a fine plant of Cattleya labiata var. King George V. The plant received an Award of Merit.

Mr. P. Weathers, Manchester, received an Award of Merit for Cattleya Bowringiana var. concolor.

Mr. A. A. McBean, Cooksbridge, exhibited the rare and distinct Odontoglossum crispum var. Solum.

Other exhibitors were The Liverpool Orchid & Nursery Co.; Messrs. Mansell & Hatcher, Rawdon; Mr. W. Shackleton, Bradford; and Mr. J. Birchenall, Alderley Edge.

AT the meeting held on November 17th the following members of the Committee were present:—Messrs. E. Ashworth (Chairman), R. Ashworth, Ashton, Cowan, Keeling, Parker, Stevens, Shill, Thorp, Ward, and Weathers (Hon. Sec.).

J. H. Craven, Esq., Keighley (gr. Mr. Corney), exhibited Cypripedium Fairrieanum, Beeches var., a nicely-shaped flower, pale in colour, to which an Award of Merit was voted.

S. Gratrix, Esq., Whalley Range, Manchester (gr. Mr. Shill), received a

First-class Certificate for Cypripedium × Queen Mary, a new and fine hybrid between C. × Æson var. giganteum and C. insigne Harefield Hall var.

Col. J. Rutherford, Blackburn (gr. Mr. Lupton), received points in the "R. Ashworth" Competition, the group consisting of some well-grown Odontoglossums, Cypripediums, &c.

Messrs. J. & A. A. McBean, Cooksbridge, received Awards of Merit for Cattleya × suavior var. alba, and Odontoglossum × Harryano-crispum var. The King.

W. R. Lee, Esq., Heywood (gr. Mr. Woodhouse), exhibited a very fine group of plants. Cypripedium × Antinous, Odontoglossum × Ceres, Plumpton Hall var., a new hybrid between O. Rossii × O. × Rolfeæ, and Cattleya × Luegæ magnifica received First-class Certificates, and a Cultural Certificate was awarded to a finely-grown plant of Odontoglossum × Harryano-crispum var. Boltoni.

W. Thompson, Esq., Stone (gr. Mr. Stevens), exhibited a few good plants. Odontoglossum × Thompsoni var. pumilum, O. crispum var. Eclipse, and O. × ardentissimum var. Graireanum received Awards of Merit.

Excellent groups were shown by Messrs. Cypher & Sons (Silver Medal); Messrs. Sander & Sons (Vote of Thanks); Mr. F. A. Hindley, Gt. Horton (Silver Medal); Mr. R. G. Thwaites, a collection of Cattleya × Maggie Rafael var. alba (Vote of Thanks). Votes of Thanks were also awarded to Messrs. E. Ashworth, Stuart Low & Co., E. V. Low, J. Birchenall, and The Liverpool Orchid and Nursery Co.

CATTLEYA × DUSSELDORFII VAR. UNDINE.

(See *Frontispiece*.)

THE Frontispiece to the present volume represents a fine plant of the chaste and beautiful Cattleya × Dusseldorfii var. Undine, carrying twelve blooms, from the collection of Lt.-Col. Sir George L. Holford, Westonbirt, Tetbury. The hybrid was raised in the collection by Mr. Alexander, from C. intermedia alba ♀ and C. Mossiæ Wageneri ♂, and received a First-class Certificate from the R.H.S. on December 9th, 1906, on its flowering for the first time (*O.R.*, 1907, p. 19). It is a charming pure white variety, with a primrose yellow disc to the lip, thus having retained the albinism of both parents, and this character extended to every seedling in the batch. It is a very free-growing and floriferous hybrid, and altogether a great acquisition. One particularly fine form, known as the Westonbirt variety, received a First-class Certificate from the R.H.S. on May 3rd, 1910. The original C. × Dusseldorfii was raised by M. Ch. Maron, Brunoy, France, from the typical forms of the two species, and flowered with him for the first time in 1904.

BULBOPHYLLUM MINIATUM AND B. KINDTIANUM.

SOME years ago a very interesting Bulbophyllum was exhibited at a meeting of the R.H.S. under the name of B. miniatum. It was said to be a native of the Congo, and had a strongly fringed white lip, recalling the Indian B. tremulum (*O.R.*, xii. p. 118). It was afterwards figured (*Journ. Roy. Hort. Soc.*, xxxiii. p. 380, fig. 53), from a plant which flowered in the Royal Botanic Garden, Glasnevin, in August, 1903. It never seems to have been described, and how it obtained its specific name remains a mystery, for the flowers are not vermilion-coloured. Shortly afterwards a Bulbophyllum from the Congo was described by De Wildeman, under the name of B. Kindtianum (*Not. Pl. Util. Congo*, p. 309), which is so closely similar that I think it may represent the one previously mentioned. It was dedicated to M. Kindt, Chef de Culture of the Jardin Colonial, Laeken, to whom living plants were sent by M. Laurent. It is said to have been found at the River Loliva, in the Congo State, in July, 1903. It was afterwards figured from a photograph (De Wildem. in *Mission Laurent.*, p. 53, t. 26). The flowers shown in the two figures are much alike, but beyond this materials are not available for comparison. In B. Kindtianum the hairs of the lip are said to be violet-rose, and in B. miniatum white, and the question remains whether they represent forms of the same or two closely allied species. It seems desirable to have the matter cleared up. The lip of B. miniatum, Mr. F. W. Moore remarks, is extremely vibratile, so much so that when the photograph was being taken the chimney of the room had to be stopped up with paper, as the draught from it kept the lips continually moving. The well-known B. barbigerum, Lindl., belongs to the same group, but has much shorter prostrate scapes, and larger flowers, while the hairs are clavate at the apex. There are several other African species which have hairy lips, though none quite so striking as those above mentioned.

R.A.R.

ORCHIDS FROM PENARTH.

A BEAUTIFUL series of flowers has been sent from the collection of J. J. Neale, Esq., Penarth, by Mr. Haddon, who remarks that they have had a splendid show this autumn, and that Dendrobium Phalænopsis has done very well. One of these is a beautiful spike of sixteen flowers, while flowers of three other forms show the usual variation, and one of them has a thickened crenulate purple ridge up the middle of the petals, though not bearing blackish papillæ like the ridges on the lip. Epidendrum vitellinum has a spike of seventeen brilliant flowers. Oncidium is represented by O. crispum, prætextum, varicosum, tigrinum, and ornithorrhynchum, and Odontoglossum by O. grande, Uroskinneri, Harryanum and tripudians.

Paphiopedilum insigne Sanderæ is a very finely developed flower, while P. Spicerianum, × Arthurianum, × Erato, and Fowleræ are all good. There is a good flower of Cattleya labiata, and a form with curiously streaked sepals and petals, which comes the same each year, but is not an improvement. Others are C. Bowringiana, with its hybrids C. × Portia and C. × Mantinii, a four-flowered spike of the chaste Masdevallia tovarensis, M. Barlæana and M. amabilis, Restrepia maculata, Epidendrum Wallisii, Cœlogyne speciosa, Trichopilia coccinea, Vanda cœrulea, Stenoglottis longifolia, Seraphyta multiflora, a brightly-coloured Phalænopsis Esmeralda, Calanthe vestita, Bulbophyllum crassipes, and B. Careyanum. Most of them are familiar autumn-flowering species, and one can easily realise the interest of a collection with such a varied assemblage of plants in bloom, and many of them of such beauty.

EPIDENDRUM PARKINSONIANUM.

THIS Orchid is best grown on a raft made of teak wood, and this should be large in proportion to the size of the plant, and when the latter becomes too large for the one on which it is growing, a fresh piece should be nailed on to the back of the old raft, as too many roots would be injured by the removal of the plant from one raft to another. For compost use Osmunda fibre in large pieces and sphagnum moss, tying this and the plant to the raft by means of copper wire. I give this Orchid no shade throughout the year, and it is hung against a wall facing south at the warmest end of a Cattleya house. Water is given in liberal quantities, by means of a syringe, at all seasons, except on cold wintry days, and for a fortnight after the flowers have faded. At other times never let the compost get dry, and leaves and roots should be always quite damp. Syringing morning and evening during the summer is necessary, but generally once a day at other seasons. A temperature never falling below 50° F. in winter, with a proportional rise in spring and summer, is necessary.

One point, on which I lay all the success achieved with this plant, is, no doubt, startling at first sight, but the value of which has been proved by experiment. It is in regard to feeding. Weak liquid guano should be given once a week whilst this plant is in full growth, and when sending out its flowers. Two years ago I fed one plant as described above, and it produced three flowers from one lead. The other plant, which was of the same size, was unfed, and produced only one small flower from a lead. This year the plant which had been fed produced three flowers from two leads, six in all, and the longest lead measured fifteen inches. The plant which was unfed only produced one flower from one lead, and the longest growth was eight inches. From the above, it can be seen that Epidendrum Parkinsonianum is benefited by feeding.

ALWYN HARRISON.

ORCHIDS IN SEASON.

A FLOWER of a very pretty hybrid Paphiopedilum is sent from the collection of W. Horton-Smith, Esq., Winnington, Northwich. It was purchased at the sale of the Monkholme collection in 1903, as a stray seedling, and is now flowering for the first time, producing a two-flowered scape. The leaves are green, and are said to resemble those of P. philippinense, being more fleshy than P. Rothschildianum or P. Stonei. The colour is most like P. insigne, but the petals, lip, and staminode show the influence of some species of the racemose set. It most recalls P. × ingens (insigne × Rothschildianum), and we suggest that it may be a form of that. The dorsal sepal is greenish yellow, with regular lines of dark brown spots, and a little white at the apex. The petals are 3½in. long by ¾in. broad, and similar in colour, but unspotted near the apex, the lip somewhat elongated, and brown in front, and the staminode obovate, convex, and very pubescent. It is a bold and striking hybrid.

A flower of the pretty Odontioda Seymourii (Cochlioda vulcanica × Odontoglossum Uroskinneri) is sent by Messrs. Mansell & Hatcher, Rawdon, Yorks. It is most like the former in colour, having rose-purple sepals and petals, but the lip is considerably enlarged, and is broadly elliptical and somewhat undulate, with a hastate base, while the ground colour is white, spotted and margined with rose.

A flower of the pretty hybrid Odontoglossum × Circe (Cervantesii × Pescatorei) is sent by Messrs. Charlesworth & Co., Haywards Heath. It is most like the former in general character, and has white flowers, prettily spotted with purple on the lower half of the segments.

A few handsome flowers are sent from the collection of E. F. Clark, Esq., Chamonix, Teignmouth. One is a beautiful Læliocattleya, raised from Cattleya superba crossed with the pollen of Lælia × cinnabrosa. It has bright rose-purple sepals and petals of fairly intermediate shape, and a very rich purple-crimson, entire lip, with some purple lines in the yellow throat. The cross was made in 1901, and only a single seed germinated, on the cocoa-nut fibre bed of a propagating frame on which the seed had scattered itself. None came up on the pots on which it was sown. There are two forms of what is believed to be Cattleya × Marstersonæ (Loddigesii × labiata), one being particularly good, and having broad rosy lilac sepals and petals, and a light rosy lilac, undulate lip, with a clear yellow throat. The other has a smaller lip with some distinct rosy markings on the lip. They were purchased as tiny seedlings of "Lælia Jongheana × Ernesti," but the Catalogue contained others of C. Loddigesii × labiata, and plants of both flowered out of the same batch. The other is a Paphiopedilum of unknown parentage, but is suspected to

be a stray seedling of P. × Leeanum × Boxallii atratum, obtained from the Selly Hill collection, and thus a form of the remarkably polymorphic P. × Hera. The dorsal sepal is light brown, with a white margin, and the lateral sepals are free.

A flower of a handsomely blotched seedling, obtained from Odontoglossum × Lambeauianum × Rolfeæ, is sent from the collection of G. Hamilton-Smith, Esq., of Finchley. It is fairly intermediate in character, and all the segments are handsomely blotched with red-purple on a white ground, with a little rosy suffusion near the apex. It will be a form of O. × Marietta, described at page 347. Mr. Coningsby remarks that it is flowering for the first time, and on the second bulb.

Two pretty forms of Cattleya × Bertii are sent from the collection of Mrs. Fielden, Grimston Park, Tadcaster, by Mr. G. P. Bound, who remarks that they were raised in the collection from C. Harrisoniana × labiata. In one case the sepals and petals are rosy-lilac, and the lip nearly entire, pale yellow, with a deep yellow disc and a little rose-purple in front, while the other has rather darker coloured sepals and petals. They are very attractive.

A pretty form of Odontoglossum × armainvillierense is sent from the collection of John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench). It was raised in the collection, and has flowers of good shape, and the ground colour white, with a large violet-purple blotch on each petal, and some similar marking on the sepals and lip. A second flower sent is from some seedlings purchased at Lord Tankerville's Sale last March, but the parentage is unfortunately doubtful, for the batch contained O. × amabile × crispum (blotched), O. c. Britannia × O. c. Fortunatus, O. c. Mundyanum × Rolfeæ, and O. × Lambeauianum × Rolfeæ. Mr. Moss thinks it must have been from the first or second, as there is no trace of O. Harryanum in the flower. The ground colour is white, with a rosy tinge, and a few red-purple spots on each of the segments.

Paphiopedilum × Miss Mary Horton is a hybrid from P. × Lathamianum × Rappartianum, raised in the collection of Alwyn Harrison, Esq., Lyndhurst, Watford, and now flowering for the first time. The cross was made in 1906. Mr. Harrison remarks that it is a vigorous grower, in habit resembling P. × Lathamianum, but the leaves rather larger. Thus it combines the characters of P. villosum, Spicerianum, and Charlesworthii.

Flowers of the handsome Oncidium varicosum var. insigne (*O.R.*, vi. p. 27), are sent from the collection of Mr. G. H. Müller, Sandhaghe, Holland. It differs from the ordinary form in having a large brownish crimson blotch round the crest of the lip, and in having sepals and petals of a similar colour. Its origin is not exactly known, but we regard O. varicosum Lindeni and O. v. moortebeekiense as forms of the same.

ORCHID NOTES AND NEWS.

THE last show of the year of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 6th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. There will be no Show on December 20th, but the Committees will sit upstairs, and plants, &c., for certificate will be received, but nothing else. The first meeting of the New Year is fixed for January 3rd.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on December 1st and 15th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The next meeting is fixed for January 5th, 1911.

R. H. S. SCIENTIFIC COMMITTEE.—The following references to Orchid exhibits at meetings of the Scientific Committee are taken from the Official Report (continued from page 286):—

August 10th, 1910:—*Spotting of Calanthe foliage.*—Plants of Calanthe vars. were shown badly attacked by a spot disease. So far as has yet been definitely ascertained, the spotting is not caused by a fungus or other organism, and appears not to be infectious. It seems rather to be due to some cultural defect, perhaps to spraying with cold water.

August 30th, 1910:—*Oncidioda* × *Charlesworthii.*—The first cross of an Oncidium with Cochlioda (O. incurvum × C. Nœtzliana) was shown by Messrs. Charlesworth, of Haywards Heath. The specimen submitted was one of several of the same raising, all of which showed the same characteristics and colouring. A Certificate of Appreciation to Messrs. Charlesworth was recommended.

October 8th, 1910:—*Catasetum sp.*—Mr. G. Rae Fraser, of Letchmore Heath, sent a pistillate flower of a species of Catasetum from Bermuda, which Mr. Rolfe considered to be probably C. macrocarpum, but as the pistillate flowers of the different species of Catasetum are so similar to one another, there is a little doubt about the name, which can only be settled when the male flowers appear. The whole inflorescence has, by the kindness of Mr. Fraser, been deposited in the Kew Herbarium.

November 3rd, 1910:—*Malformed Orchids.*—Mr. E. A. Bowles showed two malformed Orchids, a Dendrobium and a Cattleya, both showing doubling of some of their parts. They were referred to Mr. Lionel Crawshay for examination and report.

November 19th, 1910:—*Triple flower of Dendrobium formosum.*—Mr. L. Crawshay made the following report on the flower referred to him from the last meeting:—This flower has developed near the apex of an inflorescence

bearing normal ones; it is about half as large again in all its parts. . . . The abnormal flower showed five sepals and three petals, a double labellum and triple column, the middle third of which being the smallest. It is formed of three flowers, the laterals being set nearly at right angles to the median one. Each lateral flower consisted of two complete sepals, two petals (one on the labellum), and a well-developed spur. Each also accounted for one-third of the column, and bore a normal pollen apparatus. The posterior petal (dotted) showed traces of a dividing line, and represented the two contiguous petals of the lateral flowers, whilst the anterior sepal (lined), similarly represented two lateral sepals. The only evidence of the median flower was in the ovary, and the middle third of the column, which was barren. Instead of the characteristic triangle, the ovary showed an oblong section, and only five placental areas had been differentiated.

THE ORCHID REVIEW.

THE present issue completes our eighteenth volume, and we take the opportunity of announcing some alterations and improvements that will be made in the coming year.

A monthly article on the Amateur's Orchid House will be contributed by an amateur who has had the necessary experience, and who has been very successful in their culture. This, we think, will be much appreciated. It will give detailed and seasonable information on the subjects treated, though not in any way interfering with the monthly Calendar of Operations, which will be conducted by an expert grower, as before. Some special articles will also be contributed, one of which will appear in our next issue.

The reports of meetings and exhibitions will be somewhat differently arranged, so as to bring out more clearly the rapid progress which is being made in the culture of this popular family of plants.

The arrangements for continuing a concise record of hybrids in continuation of the *Orchid Stud-Book* have been somewhat delayed by the rapid accession of hybrids, necessitating a somewhat different arrangement, but the matter has not been lost sight of.

A special paper is being selected so as to bring out the full value of the photographic blocks. We also hope to increase the number of the illustrations, and to this end we invite our readers to send photographs of novelties, rarities, or examples of cultural skill from their collections. These should be good prints, on smooth paper, with a well-contrasted background. Contributions on interesting subjects are also invited.

These alterations, with another to be explained next month, will, we believe, increase the interest and value of the work, and we appeal with confidence to our readers for renewed support during the coming year.

RARE ORCHIDS AT GLASNEVIN.

SEVERAL interesting Orchids are now flowering at Glasnevin. A plant of the rare and striking Arachnanthe Cathcartii is bearing a good spike, also Ione scariosa and I. grandiflora, the latter a strong plant with three flowers. The singular little Pleurothallis ornata is remarkable for the clavate appendages on the margins of the sepals. The rose-coloured Phaius mishmiensis is bearing a good spike, other novelties being Trichocentrum Cornucopiæ, Octadesmia serratifolia, Bulbophyllum mirum, Zygopetalum Murrayanum, Cirrhopetalum retusiusculum, Cœlogyne Micholitzii and C. triplicatula, Promenæa Rollissoni, and Calanthe densiflora, with numerous other more familiar but very interesting plants.

F.G.C.

ORCHID PORTRAITS.

CATTLEYA × PORTIA, LARKIN'S VAR.—*Gard. Chron.*, 1910, ii. p. 386, fig. 159.

CYPRIPEDIUM × BRITANNIA.—*Gard. Chron.*, 1910, ii. p. 330, 331, fig. 137.

CYPRIPEDIUM × KING GEORGE V.—*Journ. Hort.*, 1910, ii. p. 433, with fig.

CYPRIPEDIUM × MINOTAUR.—*Gard. Mag.*, 1910, p. 931, with fig.

CYPRIPEDIUM × PRINCESS MARY.—*Gard. Chron.*, 1910, ii. p. 330, fig. 136.

HOULLETIA SANDERI, Rolfe.—*Bot. Mag.*, t. 8346.

LÆLIOCATTLEYA ORTRUDE MAGNIFICA.—*Journ. Hort.*, 1910, ii. p. 409, with fig.

LÆLIOCATTLEYA WALTER GOTT.—*Gard. Chron.*, 1910, ii. p. 375, fig. 158.

LYCASTE SKINNERI.—*Gard. Mag.*, 1910, pp. 894, 895 with fig.

MILTONIA × BLEUANA VIRGINALIS.—*Journ. Hort.*, 1910, ii. p. 481, with fig.

SOPHROCATTLEYA DORIS, COBB'S VAR.—*Journ. Hort.*, 1910, ii. p. 457, with fig.; *Garden*, 1910, ii. pp. 584, 585, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

G.H.M. 1. The flower is much like a lilac-tinted form of Vanda cœrulea, and presumably it has also the habit of that species. There are two or three other plants whose origin is not yet quite certain. 2. Oncidium varicosum var. insigne.

J.J.N. Catasetum maculatum, Kunth.

Photographs received, with thanks.—W.A.H., S.R.

J.F.S. Epidendrum stenopetalum, Hook., a native of Central America, and the West Indies.

T.W.B. Rodriguezia candida, Rchb. f.

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